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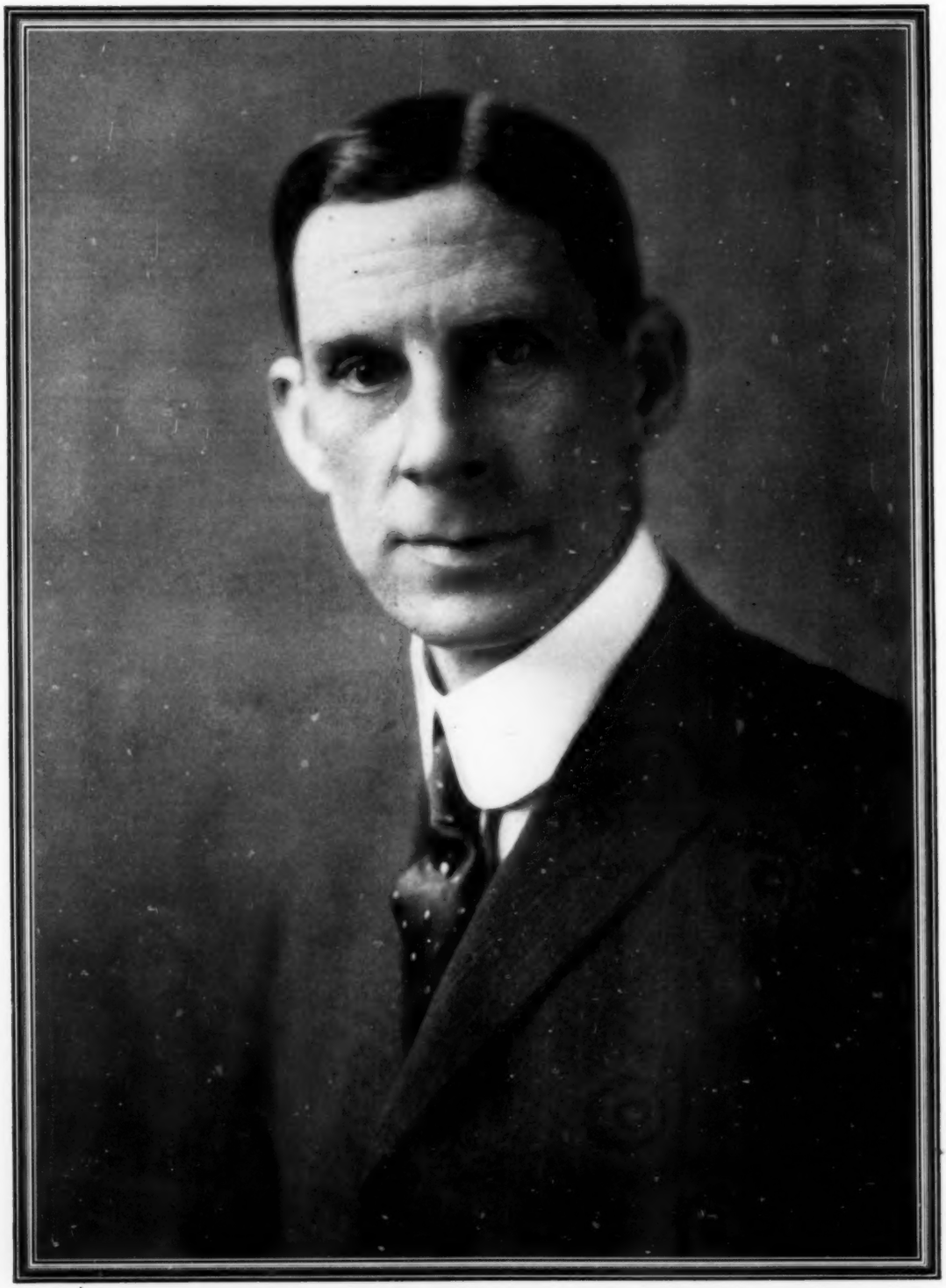

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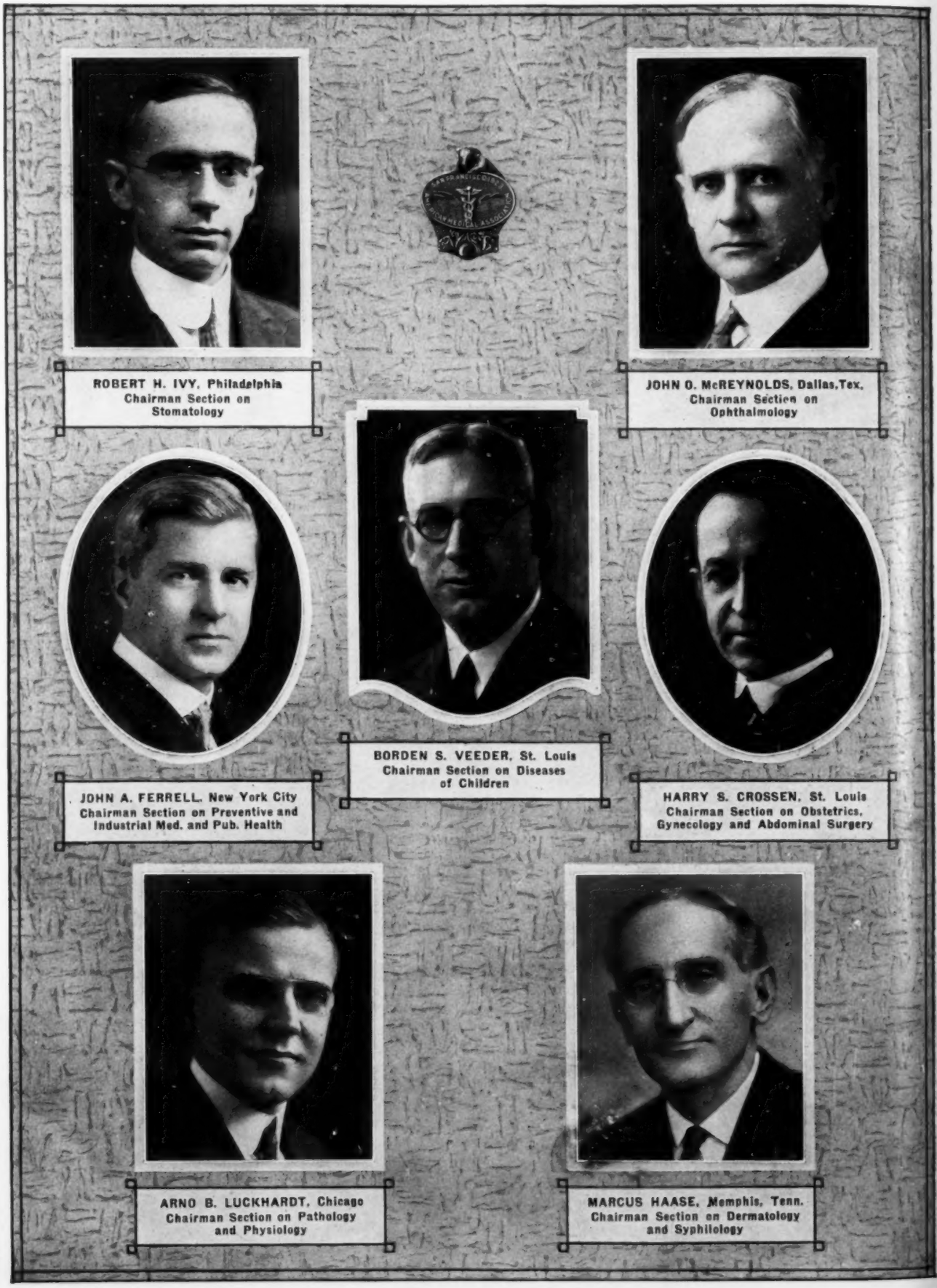

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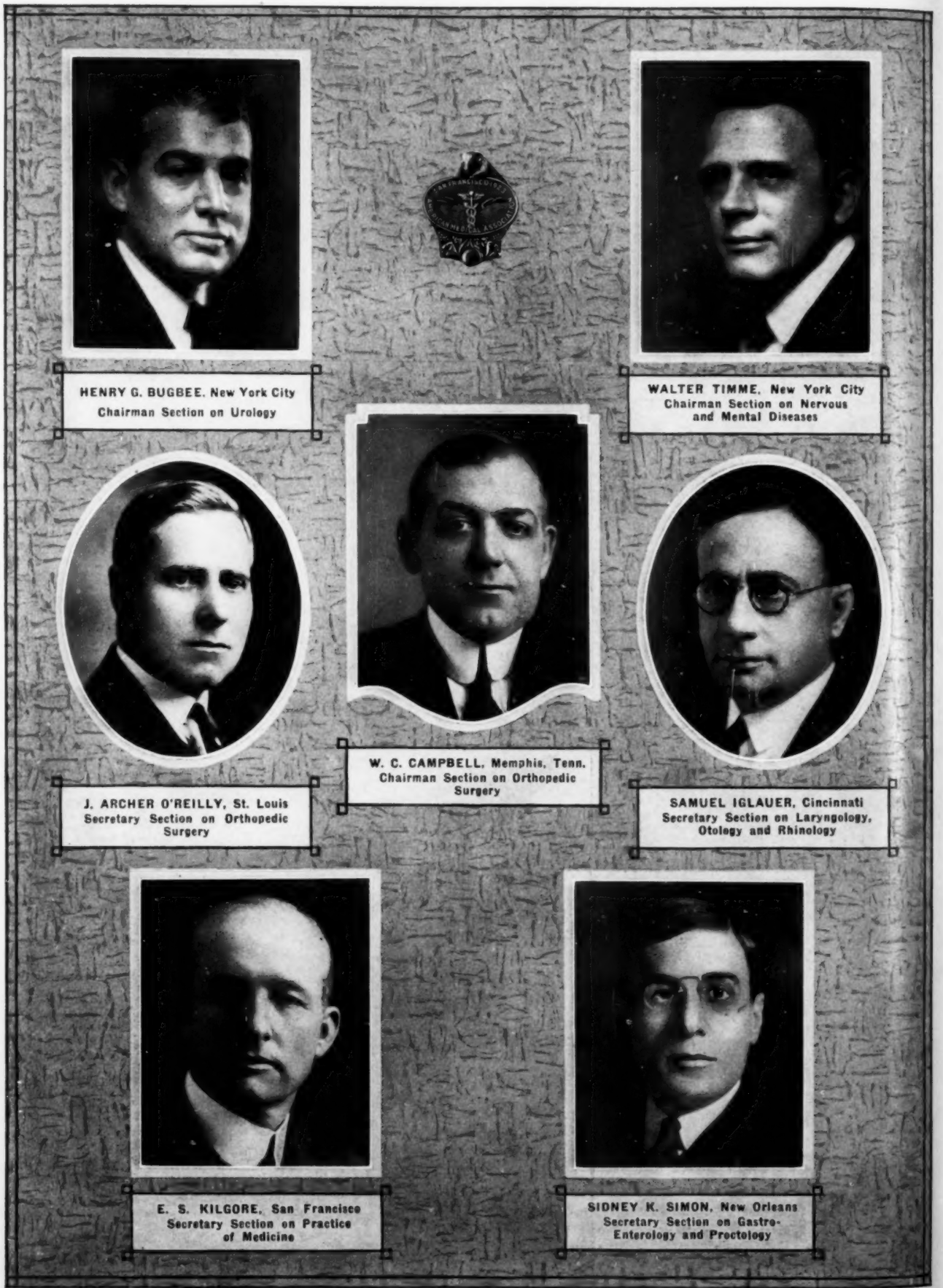
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RECENT PHASES OF THORACIC SURGERY *

EVARTS A. GRAHAM, M.D.

ST. LOUIS

The development of the surgery of the thorax has been slower than that of any other field. Although operations for drainage in cases of empyema were carried out by the ancients, it is only in very modern times that any extensive surgical procedures have been undertaken within the thorax. The newness and the present undeveloped state of the surgery of this region are reflected not only in the high mortality of some of the procedures, but also in the lack of any sort of uniform agreement as to what constitute operative indications in many of the conditions. Thoracic surgery is now passing through the period of high mortality and indifferent results which characterized the field of abdominal surgery twenty-five years ago, and of the surgery of the brain even more recently. In the future it will unquestionably be made safer by a better understanding of the physiology and pathology involved, by a more precise drawing of operative indications, and by a closer cooperation between the internists and surgeons, which will permit the carrying out of operative procedures at a time when they may prove of real benefit with a minimum risk instead of being last resorts in patients who are already nearly dead.

Physiology and pathology must always be the foundations on which surgical progress will be developed. Perhaps no other factor has retarded the development of thoracic surgery so much as a misconception of the physiologic principles which underlie an opening into a pleural cavity, regardless of whether that opening is a surgical one or an accidental one. The old fear that death would almost inevitably follow a surgical incision into a free pleural cavity led to the invention of various cumbersome appliances to permit the surgeon to carry out an intrathoracic operation without losing his patient on the table from asphyxia. The very complicated nature of the contrivances predicated little development for this kind of work, for successful surgery must be simple surgery. Then came the war, and to the confusion of previous conceptions vast numbers of men were seen with wounds that caused extensive pleural openings; but, *mirabile dictu,* they did not all die of asphyxia. The logical conclusion was therefore drawn that a man could withstand a relatively large surgical opening into his chest without a fatal asphyxia.

The lack of harmony between these observations and the previous conceptions of the dangers of an open pneumothorax led to much confusion. Was it actually possible that the pleural cavity could be opened with impunity? This was a frequently recurring question to any one whose experience preceding the war had led him to observe in some cases alarming disturbances in respiration following an incision into the pleural cavity. But notwithstanding the apparent disagreement between these observations, it is possible to reconcile both in the light of newer work.

In 1918, R. D. Bell and I,[1] while members of the U. S. Army Empyema Commission, attempted to find out by direct experiment what actual changes are produced when a free opening is made into a pleural cavity. Recourse to the simple expedient of recording the pressures in both pleural cavities after air had been injected into one sufficed to demonstrate that the usually accepted ideas of the mechanics of open pneumothorax were incorrect; for these ideas had been based on the conception that a more or less rigid partition exists between the two pleural cavities. Instead of a rigid partition, however, the mediastinum in a normal subject is actually so mobile that any alteration in pressure on one side of it is accompanied by an alteration in pressure on the other side to almost the same extent. With a slight alteration of pressure in one pleural cavity, the pressure in the opposite pleural cavity becomes practically the same, differing only by 0.5 or 1 cm. of water (0.4 or 0.8 mm. of mercury).

In the case of a great alteration of the pressure, however, the agreement between the pressures of the two sides becomes less close, as a result, doubtless, of the fact that, as the mediastinal pleura becomes stretched, its resistance becomes greater. Thus, for example, if air is forced into the left pleural cavity until a pressure of 5 cm. of water exists in that cavity, the pressure reading of the opposite pleural cavity will be practically the same, differing only by about 0.5 cm. of water pressure. If the injection of air is continued until a pressure is obtained equal to that of 10 cm. of water on the injected side, the pressure in the opposite pleural cavity will differ by only 1 or 2 cm. of water. If, however, the injection is continued until the very great pressure of 27 cm. is obtained, then the pressure in the opposite pleural cavity will register only 18 cm. In these respects, the thorax of the dog does not differ materially from that of man. The dog seems, therefore, to be a suitable animal for experimental work in pneumothorax, contrary to the state-

* From the Department of Surgery, Washington University Medical School.

* Read before the California Academy of Medicine, San Francisco, Feb. 10, 1923.

1. Graham, E. A., and Bell, R. D.: Open Pneumothorax: Its Relation to the Treatment of Empyema, Am. J. M. Sc. **156**: 839 (Dec.) 1918.

ments of Matas,[2] Duval[3] and Yates,[4] who, for some unexplained reason, have stated that in the dog a communication exists between the pleural cavities. I have carefully examined twenty-five dogs to see whether such a communication exists, and I have tested most of these with injections of air or water into one pleural cavity to see whether it would pass to the other side. In not a single dog have I been able to find the alleged opening. The accompanying roentgenograms clearly demonstrate that an artificial pneumothorax in the dog remains unilateral if it is properly made.

It is to be strongly emphasized that the conditions just discussed hold true only in the normal thorax. Obviously, if adhesions are present, or if there is thickening of the mediastinal pleura, different relationships exist.

As a development from the fundamental principle previously discussed, it was possible for us to derive a mathematical expression which permitted an approximate calculation of the maximum opening of the chest wall which could occur in the normal subject without causing death from asphyxia. For the details of this, reference may be made to some of my former publications. One of the most important factors in the expression was the vital capacity. Individuals with large vital capacity determinations could theoretically withstand much larger openings in the chest wall than those with small vital capacities.

The importance of these experimental results lay in what seemed to us to be their wide applicability to the whole field of thoracic surgery. They seemed, for example, definitely to establish on a rational basis the importance of avoiding an open drainage in cases of empyema during the acute pneumonic stage, a period in which not only is the vital capacity of the patient low, but in which there is also likely to be an absence of stabilizing adhesions, conditions which therefore would make even a small, free opening in the chest likely to result in a fatal asphyxia. I believe that this principle is now universally accepted in this country. Moreover, these results seemed to provide a sound basis for harmonizing all the conflicting conceptions relative to whether or not a free opening in the pleura is a source of immediate danger to the patient; for it at once became clear that the differences in danger in this respect in different patients must be very great. Obviously, young athletic individuals with large vital capacities can withstand much larger openings than those whose vital capacities are low. The rabbit cannot withstand a pleural opening so large as that of a dog chiefly because, since it is a smaller animal, its vital capacity is very much less than that of the dog. Obviously, also, a healthy young soldier who suddenly receives a wound in the chest can withstand a larger opening than a patient who, from a long illness, has a low vital capacity. Moreover, it becomes apparent that, if adhesions exist, or if the mediastinum is stabilized by induration, the individual may have no effects whatever from an enormous opening.

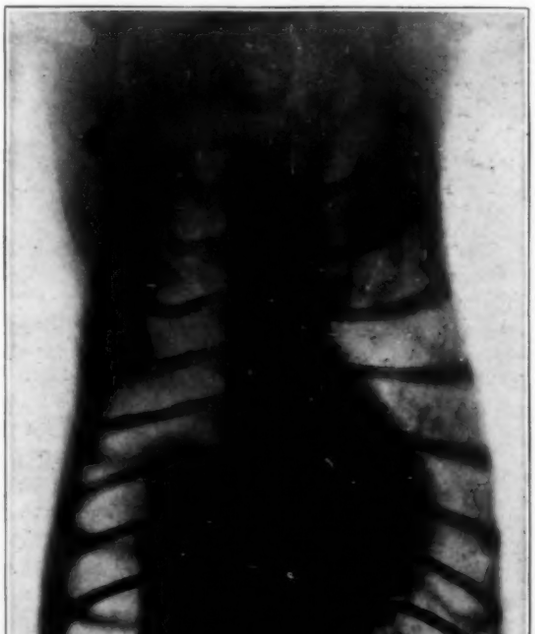

Fig. 1.—Lungs of dog, showing unilateral pneumothorax on the left side with the heart pushed over to the right side; this indicates clearly that there is no communication normally between the two pleural cavities of the dog.

In our first publication on this subject, on the basis of what was then considered to be the average vital capacity (3,700 c.c., as given by Howell[5]), we calculated that the maximum nonfatal opening of the chest wall in an average normal human being would be 8 square inches, or 51 square centimeters. Later work, however, by Peabody and his associates[6] has shown that the average vital capacity is much greater than 3,700 c.c., and that in some persons it may be so high that, on the basis of our formula, a theoretical calculation of the maximum nonfatal opening of the chest would be 15.6 square inches, or 101 square centimeters. Unfortunately, we apparently failed to make clear in our various publications that these mathematical calculations were intended to be only approximately correct. Some subsequent writers (for example, Lockwood,[7] Richter[8] and Duval[9]) have seized on the actual figures in our first publication, calculated as giving a maximum nonfatal opening of the chest in an average normal adult, and have misinterpreted the whole principle which the work carried with it. This attitude has been due chiefly to the fact that they feel sure that they have seen life continue with openings which were actually larger than the figures given. I wish to reply that:

1. It was distinctly stated that the original calculations of 8 square inches, or 51 square centimeters, were given as representing the maximum nonfatal opening in an average normal adult, based on what was incor-

2. Matas, Rudolph: The Value of Artificial Aids to Respiration in Acute Operative Collapse of the Lungs, Arch. Surg. **5**: 110 (July) 1922.

3. Duval, P.: Les données actuelles de la chirurgie intrathoracique unilatérale en plèvre libre, Presse méd. **30**: 409 (May 13) 1922.

4. Yates, J. L.: Effects of Acute and Chronic Pneumothorax: A Preliminary Report, Am. J. M. Sc. **165**: 1 (Jan.) 1923.

5. Howell: Textbook of Physiology, Philadelphia, 1911, p. 646.

6. Peabody, F. W., and Wentworth, J. A.: Clinical Studies of the Respiration, IV, The Vital Capacity of the Lungs and Its Relation to Dyspnea, Arch. Int. Med. **20**: 443 (Sept.) 1917.

7. Lockwood, A. L.: Developments and Possibilities of Thoracic Surgery, S. Clin. N. Am. **1**: 1425 (Oct.) 1921.

8. Richter, H. M., in discussion on Eggers, Carl: The Relative Value of Various Operative Procedures Employed in Acute Empyema, J. A. M. A. **75**: 1000 (Oct. 9) 1920.

9. Duval, P.: Les données actuelles de la chirurgie intrathoracique unilatérale en plèvre libre, Presse méd. **30**: 409 (May 13) 1922.

rectly given in textbooks of physiology as the normal average vital capacity; the fact that some individuals can withstand openings larger than these figures really has not very much to do with the question.

2. The size of an incision and the size of an opening are not synonymous terms if there is anything in the incision, whether it be the operator's hand, gauze packs, a delivered lung, or what not; it is astonishing how this simple discrepancy has led to confusion in the minds of many; is a hole that is filled up any longer a hole, or can an opening in the chest wall into which gauze has been inserted be as large as the area of the original incision?

3. It becomes really a matter of minor importance whether the actual nonfatal maximum opening is 8 square inches or 18 square inches; the important points to remember are that a unilateral opening may be made of sufficient size to kill the patient, and that some persons whose vital capacities are low will not be able to withstand an opening of any appreciable size unless adhesions are present or unless the mediastinum has been made rigid by induration.

4. Finally, any one whose experience in thoracic surgery in civil life has been at all extensive knows only too well that the statements made by overenthusiastic war surgeons about the innocuousness of open pneumothorax in all cases should be completely discredited. It is a curious fact, psychologically, that many of these enthusiasts, while denying the dangers of open pneumothorax, themselves unconsciously resorted to measures which minimized these dangers. Thus, when possible, they would deliver the lung out of the incision; they would pack gauze into the opening, and frequently they would have one or both hands in the incision; moreover, there was unanimous agreement that an open sucking wound should be closed as soon as possible.

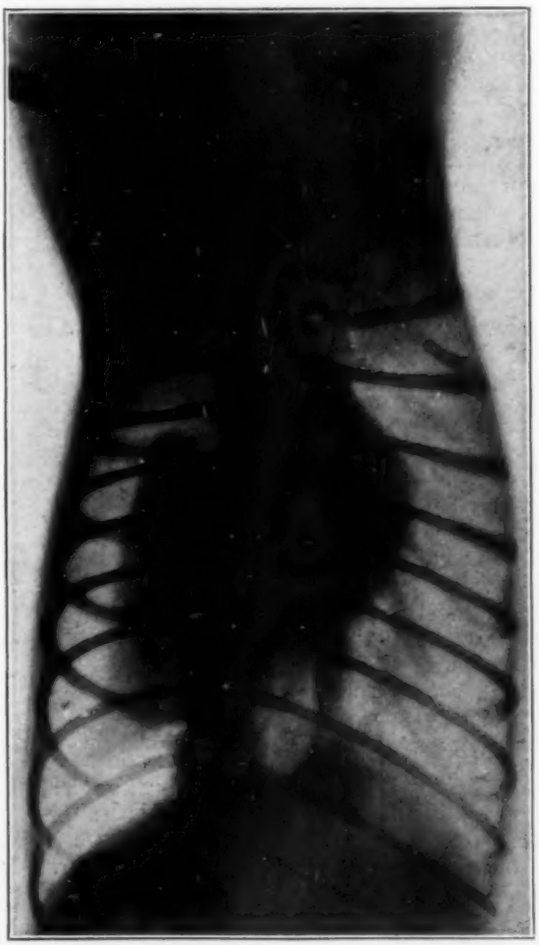

Fig. 2.—Lungs of another dog, showing left-sided pneumothorax with the heart pushed over to the right.

The fundamental principles of the work on pneumothorax which I have discussed above have been corroborated by several recent investigators. Thus, for example, Stivelman, Hennell and Golembe[10] state, from their extensive experience with artificial pneumothorax, that "Graham and Bell touched the heart of the subject, when they came to the conclusion that: 'From the standpoint of pressure relations, the thorax may be considered as one cavity instead of two. Any change in pressure in one pleural cavity will affect also the other one almost equally.' . . . The results of our own experiments . . . also support this view. . . . In the presence of a flexible mediastinum, the intrathoracic equilibrium in pneumothorax is very delicately adjusted, and any disturbance in the intrathoracic pressure on the treated side will have a proportionate effect on the intrathoracic pressure on the untreated side." Experiments both by Simon[11] and by Betchov[12] on animals have likewise corroborated the truth of our fundamental conclusions. Lenhart,[13] from experiments on rabbits, came to the same conclusion, and he states that his results tend to confirm the conclusions drawn by us.

It is unfortunate that it seems necessary to become so controversial on the various points concerning open pneumothorax. My reason for assuming a controversial attitude is merely that the importance of having a clear understanding of the mechanics of open pneumothorax is so great that it seems advisable to call attention to certain misunderstandings and misquotations of our work on this subject. A better theory of the mechanics of open pneumothorax than that which has been summarized here will be very welcome. Up to the present time, however, this has seemed not to have been offered.

When one considers the question of acute empyema, it seems to me that nothing explains so simply the remarkable reduction of mortality accomplished by the avoidance of an open drainage during the acute pneumonic stage. Can any one now doubt the wisdom of this plan of treatment? From a statistical standpoint, the evidence seems overwhelming. At Camp Lee, the Empyema Commission saw the mortality drop from a rate of more than 40 per cent. to one of less than 5 per cent. when early open drainage was given up. Stone, at Fort Riley, showed a correspondingly remarkable reduction in mortality after the abandoning of open drainage during the pneumonic stage. He divided his cases as follows:

1. First series: Early operation (Oct. 20, 1917, to Jan. 21, 1918), eighty-five cases; mortality, 61.2 per cent.
2. Second series: Early aspirations and late operation (Jan. 12 to Aug. 10, 1918), ninety-six cases; mortality, 15.6 per cent.
3. Third series: Early aspirations and late operation (Oct. 18, 1918, to Feb. 14, 1919), ninety-four cases; mortality, 9.5 per cent.

10. Stivelman, B. P.; Hennell, Herman, and Golembe, Harry: Clinical Significance of Altered Intrathoracic Equilibrium in Pneumothorax, J. A. M. A. **78**: 1450 (May 13) 1922.

11. Simon, S.: Effect of Artificial Pneumothorax on Collateral Lung, Am. Rev. Tuberc. **5**: 620 (Oct.) 1921.

12. Betchov, N.: Ueber den Einfluss des einseitigen Pneumothorax auf die Spannungsverhaltnisse in der anderen Lunge, Schweiz. med. Wchnschr. **51**: 15 (Jan. 6) 1921.

13. Lenhart, C. H.: Open Pneumothorax: An Experimental Study of the Functional Pathology of Sucking Chest Wounds, Arch. Surg. **1**: 336 (Sept.) 1920.

At the St. Louis Children's Hospital, since September, 1919, eighty-three cases of acute empyema have been treated by a plan of repeated aspirations during the pneumonic stage to be followed by free drainage. In this series there have been ten deaths, but not a single case has been fatal which was not accompanied by serious complications, such as suppurative mastoiditis or meningitis. This mortality of 12 per cent. compares very favorably with that quoted by Holt [14] of a mortality of 54 per cent. in 126 cases of acute empyema in children. Holt's report was made before the war, and it represents, therefore, a plan of treatment based on the older ideas.

A subject of great discussion at the present time concerns the question of the necessity for apparatus for differential pressure in performing intrathoracic operations. Some of the overenthusiastic war surgeons have claimed that the experience with war wounds has shown that it is never necessary, forgetting that "never" is a dangerous word to use in surgery. It is beyond argument that intrathoracic operations can be performed on many patients with a disregard of any form of apparatus for differential pressure. These are the patients who have extensive adhesions or rigid mediastinal pleurae or those whose vital capacities are high. Others, however, notably those whose vital capacities are low and who have no adhesions, will go through intrathoracic operations much more safely if some auxiliary agent is present to assist in inflating the lungs if necessary. For this purpose, I have found that Gwathmey's suggestion to use an ordinary nitrous oxid machine with a tightly fitting inhaler is eminently satisfactory. As a general rule, I believe that the anesthesia of choice in thoracic work is local anesthesia combined with nitrous oxid and oxygen. At any time that may be necessary during the operation, the lungs can then be inflated. Also in children, even in cases of empyema, much of the fright and terror which accompany an operation under local anesthesia can be avoided in this way. In any event, whether or not apparatus for differential pressure is used, it is wise for the surgeon to remember that too large an opening may cause death, and that the surest way to avoid a fatal asphyxia is to close the opening, by plugging it with a lung delivered out of the incision, with gauze compresses or in any other way.

THE MECHANISM OF FORMATION OF PLEURAL EXUDATES

The rapidity with which fluid accumulates in cases of infection of the pleura with the hemolytic streptococcus suggested the idea that, with a very edematous pleura, fluid may actually be sucked out by the negative pressure during the act of inspiration. In cases of dyspnea in which there is increased depth of inspiration, the intrapleural pressure is correspondingly reduced (made more "negative"), and, accordingly, more fluid is likely to be aspirated into the pleural cavity. In cases of pneumonia due to the streptococcus, dyspnea is often marked; the patient makes a maximum respiratory effort to get air into his lungs, and it is not surprising, therefore, that a large amount of fluid should collect rapidly in the pleural cavity, because the conditions are right for a markedly negative intrapleural pressure. This idea was put to the test of experiment by the construction of an artificial thorax with a bell-jar and a pair of lungs. When the air in the bell-jar around the lungs was aspirated, the lungs would inflate in a manner similar to an ordinary inspiration. When edematous lungs were used, either those from a case of pneumonia in the human being, or dogs' lungs made edematous by pouring into the trachea water containing a little dilute acetic acid, pleural exudate could be seen to pour from the lung surface with each imitated act of respiration. Contrary to the expectation, however, the fluid poured out more rapidly during the act of expiration than during inspiration. The explanation seemed to be that during inspiration the pleura became saturated, and then with the sudden decrease of surface produced by the act of expiration, the fluid was literally squeezed out. So far as I know, this is the only attempt that has been made to study the actual mechanism of the production of pleural exudates. The problem needs more study.

PROGRESS IN CLINICAL CONDITIONS

A note of decided pessimism is expressed by Robinson [15] in his recently published address before the American Association for Thoracic Surgery. It is to be regretted, of course, that progress in this branch of surgery has not been more rapid, but yet I cannot fully agree with Robinson in his pessimistic attitude. There are many hopeful signs, of which the great advance in the treatment of empyema is only one.

PULMONARY SUPPURATION

Possibilities of an early and an accurate diagnosis of lung abscess have enormously advanced in recent years, chiefly as the result of progress in the use of the roentgen ray. Likewise, we have learned of the definite etiologic relationship of tonsillectomy and other operations in the mouth. The combination of these two facts will unquestionably lead to the earlier recognition and the more prompt treatment of the pulmonary suppuration. The tonsillectomy patient who develops a cough and a fever will be regarded with more suspicion as possibly having a lung abscess than would have been the case even a few years ago. Increasing development in the art of bronchoscopy and an increase in the number of skilled bronchoscopists have, by permitting the removal of foreign bodies in this way, prevented many lung abscesses and have led to the prompt healing of many cases which otherwise would have become chronic.

Surgical drainage is not necessary in all cases of acute lung abscess. Proper postural drainage and artificial pneumothorax in certain cases will give results just as satisfactory as surgical drainage. An important problem, at present, is to define more accurately the indications for surgical drainage. Postural drainage will be of value only in those cases in which the abscess communicates with a bronchus. Artificial pneumothorax should be reserved for relatively small abscesses without adhesions. It should be emphasized, furthermore, that this method is not without danger; Wessler [16] has reported two deaths from artificial pneumothorax.

Surgical drainage should certainly be employed in large acute abscesses, and probably in any abscess with increasing toxic symptoms. If the lung is not adherent to the chest wall, a two-stage operation is to be preferred. The aspirating needle should be used only at the time of operation and under conditions that insure against the infection of the

14. Holt: The Siphon Treatment of Empyema in Infants, Am. Med. **19**: 381, 1913.

15. Robinson, Samuel: The Present and Future in Thoracic Surgery, Arch. Surg. **6**: 247 (Pt. 2) (Jan.) 1923.

16. Wessler, Harry: Suppuration and Gangrene of the Lung; a Study of One Hundred Cases, J. A. M. A. **73**: 1918 (Dec. 27) 1919.

pleural cavity by the escape of pus along the needle track from the lung. Let me strongly emphasize that under no circumstances should the aspirating needle be used unless one is prepared to go ahead with the operation immediately. Lockwood [17] has proposed a method of free intrapleural exploration followed by delivery of the affected portion of lung out of the incision; after the lung has been sutured to the chest wall, the whole abscess-containing portion of lung is then excised. This method seems very attractive for the handling of some cases, but its applicability must be exceedingly limited and out of question in those cases in which the abscess is near the hilum.

Abscess of the lung constitutes one of the most difficult conditions to treat satisfactorily that occur in the category of nonmalignant affections. The unfortunate victim of pulmonary suppuration may survive the period of danger while the abscess is acute, only to become a chronic invalid subject to frequent attacks of fever, with offensive breath and sputum, and more or less frequently recurring pulmonary hemorrhages. If he does not die of pulmonary hemorrhage, he may end his unhappy existence with a brain abscess or meningitis. The present undeveloped state of thoracic surgery is clearly shown not only in the wide differences of opinion that exist concerning the best methods of dealing with acute lung abscesses, but also in the inadequacy of the measures for coping with the late results of abscess. The ease with which a rib may be resected and an opening made into an adherent lung has made the treatment of lung abscess appear as a simple matter to the uninformed. Fortunately, there are some cases that respond to this treatment in a gratifying manner. But there are many others, on the contrary, in which the patients pass into a condition of chronic invalidism, even although they have been relieved of a large collection of pus. Any one who follows up patients on whom operation has been performed is aware of the full truth of this statement.

In the chronic lung abscess, surgical drainage with a tube is usually of little avail, because of the pathologic condition that is present. There no longer exists a single cavity of pus which can be drained off. Instead, the lung may be honeycombed with several collections of pus, some of which may not communicate with either a bronchus or with a previously established drainage channel. The portion of lung involved is fibrotic. The bronchioles are dilated and thickened; their lumina contain granulation tissue that bleeds easily. The whole lobe may be contracted as a result of nature's unsuccessful attempt to obliterate the suppurating cavities.

In most of these cases, the patient must either be content with a life of chronic invalidism, or submit to a radical surgical procedure. The only procedure that will be effective in most cases is removal of the diseased lung tissue. But the operation of lobectomy is still a most formidable undertaking. I would suggest that any one who has never performed it should read Robinson's vivid account of its difficulties before attempting it. Lilienthal [18] has had the most extensive experience of anybody in the world with resection of the lung. In twenty-four cases, he has removed one or more lobes. Of fourteen cases in which one lobe was removed, six patients died, a mortality of 42.8 per cent. Of ten cases in which more than the removal of a single lobe was accomplished, seven patients died, a mortality of 70 per cent. In his series, therefore, there has been a total mortality of 54 per cent.

Bronchiectasis is the condition for which a resection of the lung has been done most frequently. In twenty-one of Lilienthal's cases, resections were performed because of this diagnosis. Of this number, seven patients (33 per cent.) were reported as well; twelve (57 per cent.) died, and, of the remaining two patients, one was reported as convalescent and the other as still having cough and expectoration, although his wound was healed. Also, one of the patients classified as well still had a small fistula. Six patients, therefore, of Lilienthal's series of bronchiectasis may be considered as having had completely satisfactory results, by which I mean complete relief from symptoms and complete healing of the wound. I [19] recently reported my own experience of lobectomy in bronchiectasis, consisting of one completely successful result and two deaths. A study of the literature which I reviewed showed that, including my own three cases, there were reports of forty-eight cases of bronchiectasis in which lobectomy had been performed. Of this number, twenty-five patients have died, presumably as a result of the operation, a total operative mortality, therefore, of 52 per cent. Probably, however, isolated fatalities have occurred here and there which have not been reported, so that the operative mortality has perhaps been actually higher than 52 per cent. Furthermore, not all of the pateints who have survived the operation can be considered as being well. In 1917, Smith and Mudd [20] carefully analyzed the cases reported up to that time, and they considered that only three could be regarded as complete successes, two of Lilienthal's and one of Robinson's. It would appear now, however, that in six cases of Lilienthal's complete series, and in one of my own, there have been perfectly satisfactory results. This, then, would make eight complete successes out of forty-eight cases in which resection has been performed. In other words, in only 17 per cent. have complete successes occurred.

The natural query, therefore, is: Should the operation be considered a justifiable one? Until some other more satisfactory method of treating these patients is found, I believe that it is justifiable in properly selected cases, because the misery of many of those afflicted with the condition is beyond description. In most of the advanced cases, the patients are social outcasts, unable to find employment or to enjoy ordinary human associations. To many of them death would come as a welcome relief from their misery, and, indeed, some of the patients threaten suicide if they cannot be given relief. In a series of twenty-seven cases of bronchiectasis studied by Dr. J. J. Singer and myself, no less than six patients have implored us to perform a resection in spite of being fully informed as to its dangers. In three of the cases we refused because we felt that the proper indications were not present.

In an attempt to avoid the heavy mortality of lobectomy, we have recently tried in two cases of chronic lung abscess a procedure which promises much hope and which seems to be well tolerated by the patient. From a modest series of two cases, however, we cannot state what its dangers may be, but the results have been particularly gratifying in view of the fact that

17. Lockwood, A. L.: Abscess of the Lung, Surg., Gynec. & Obst. **35**: 461 (Oct.) 1922.

18. Lilienthal, H.: Resection of the Lung for Suppurative Infections, with a Report Based on Thirty-One Operative Cases in Which Resection was Done or Intended, Ann. Surg. **75**: 257 (March) 1922.

19. Graham, E. A.: The Surgical Treatment of Bronchiectasis, Arch. Surg. **6**: 321 (Pt. 2) (Jan.) 1923.

20. Smith, E., and Mudd, H.: A Modification in Method of Pneumotomy for Bronchiectasis, Tr. A. Am. Phys. **32**: 313, 1917.

both patients were middle-aged and would have been poor risks for an ordinary type of lobectomy. The method consists, briefly, of freely exposing the diseased portion of lung and burning it out with an actual cautery heated to a dull red heat. To be effective, the whole diseased part must be burned away. The procedure amounts to a lobectomy performed with a cautery. It is not at all comparable with the well-known use of the cautery merely to open an abscess cavity. Further details of the operation will be published later in another article. The advantages of this procedure over the usual methods of performing lobectomy seem to lie in the ease with which it is tolerated, as compared with the usual stormy postoperative course in a case of lobectomy. It will be applicable, however, only to cases in which strong adhesions exist between the lung and the chest wall, but it seems possible that it may be as effective in cases of bronchietasis as in those of chronic lung abscess. There will exist the danger of late hemorrhage, but this complication has not occurred in my first two cases; and, moreover, I doubt whether the danger in this respect is any more real than after lobectomy performed in the usual way. Only additional experience will decide this point. In the first case, that of a patient referred to me and studied by Dr. J. J. Singer, the result has been very gratifying. Within a few days after operation the patient was entirely relieved of cough and sputum, her fever and pain disappeared, and her appetite and strength returned. On the tenth postoperative day, she was up and walking around. During the course of the operation, two abscesses were encountered, each of which contained about 10 c.c. of foul-smelling pus. Neither one of these communicated with the existing drainage track. The second patient, who also had a chronic abscess, referred to me by Dr. Singer, was operated on only a few weeks ago, but the result so far is gratifying.

CARCINOMA OF THE ESOPHAGUS

Cancer of the esophagus continues to be one of the most baffling therapeutic problems in the whole field of medicine. The possibility of the accomplishment of successful results by radiotherapy, of which there seemed to be some hope a few years ago, seems now not to exist. Likewise, the optimism that followed the report of the patient successfully operated on for a carcinoma of the thoracic portion by Torek [21] of New York, in 1913, who is still alive and free from recurrence, which optimism was still further encouraged by the successful result of Zaaijer,[22] rapidly faded with a succession of failures. Hope has been revived again, however, by Hedblom's [23] gratifying result, and also by Lilienthal's [24] case. In the latter, apparently a successful operative result was obtained, although the man died several weeks later. The points of particular interest in Lilienthal's case were that he used the approach through the posterior mediastinum, one which had already been developed somewhat by Rehn [25] and Kirschner, and that he tried to guard against infection of the mediastinum by using a cuff of skin to restore the lumen of the resected esophagus. The principal danger in these operations has always been that of infection of the mediastinum. A method that seems to be a great improvement over Lilienthal's "skin cuff" is one worked out recently in our laboratory by Dr. Duff S. Allen.[26] He has used a double cuff of fascia lata in a two-stage method. The first stage consisted of the isolation of the esophagus and the placing of a double cuff round the portion to be excised. Two weeks later, the portion of the esophagus to be excised, with the inner layer of fascia lata, could be readily removed. The outer layer of fascia lata had become vascular, could be promptly sutured over, and, in a series of fourteen experiments on dogs, only two died with evidence of leakage. Of this series, there were five thoracic resections, with one death. The rest were resections of the cervical portion. The method has not yet been tried in man, but it seems to be a feasible method for attacking a carcinoma of the thoracic portion of the esophagus. The recent experimental work on this subject has been summarized by Fischer.[27]

SURGERY OF THE HEART VALVES

The possibility of extending surgical relief to those who suffer from stenotic lesions of the mitral and other valves of the heart has recently been opened up by a new method, which has been described by Dr. Allen and myself.[28] An instrument has been devised which permits the cutting of one or more leaflets of a heart valve under direct vision. At first thought, it would seem impossible to be able to see within the heart because of the presence of the opaque blood. On the contrary, however, if the convex lens of the cardioscope is in contact with a leaflet of a valve or with the heart wall, the blood is pushed away and a clear vision is possible. It is fascinating to watch the functioning of the valves through the instrument. The heart is entered through an auricular appendage, the rhythm is not impaired, there is no hemorrhage, and there is no need of great haste. Up to the present time, we have used the method only on dogs, but its application to the dog is so simple and so free from shock that it seems as if it might well be possible to extend its use at some time in order to convert a mitral stenosis in the human into a regurgitation. At least, we feel that the method will permit a new type of physiologic experimentation on animals which may be of value. At first we were afraid that perhaps a valve that was cut might heal again so promptly that the cutting of it would be of little permanent value. We are convinced now, however, that the healing over of an artificially made cut in a valve leaflet is not likely to occur, since we have several dogs alive now whose mitral valves were cut nearly a year ago. These dogs still have regurgitation murmurs which are clearly audible. Other dogs which have been killed and examined at postmortem several months after the operation have also shown that the cut valves have not healed over again.

I regret that, because of lack of space, I cannot discuss other interesting new features of thoracic surgery, particularly the work on pulmonary tuberculosis, tumors of the mediastinum and of the lungs, and mediastinal suppuration. I hope that I have made it clear that the surgery of the thorax is making definite progress. Its future will depend to a considerable

21. Torek, Franz: The First Successful Resection of the Thoracic Portion of the Esophagus for Carcinoma, J. A. M. A. **60**: 1533 (May 17) 1913.
22. Zaaijer: Erfolgreiche transpleurale Resektion eines Kardiakarzinoms, Beitr. z. klin. Chir. **83**: 419, 1913.
23. Hedblom, C. A.: Combined Transpleural and Transperitoneal Resection of the Thoracic Oesophagus and Cardia for Carcinoma, Surg., Gynec. & Obst. **35**: 284 (Sept.) 1922.
24. Lilienthal, H.: Carcinoma of the Thoracic Oesophagus; Successful Resection, Ann. Surg. **74**: 259 (Sept.) 1921.
25. Rehn: Operationen an dem Brustabschnitt der Speiserohre, Arch. f. klin. Chir. **57**: 733, 1898.
26. Allen, D. S.: Experimental Reconstruction of the Oesophagus with Autogenous Fascia Lata Transplants, Ann. Surg. **76**: 157 (Aug.) 1922.
27. Fischer, Hermann: Surgical Treatment of the Esophagus, Arch. Surg. **6**: 256 (Pt. 2) (Jan.) 1923.
28. Allen, D. S., and Graham, E. A.: Intracardiac Surgery—A New Method, J. A. M. A. **79**: 1028 (Sept. 23) 1922.

extent on an encouraging attitude of mind on the part of the internists toward those who, by pioneer work in this field, are trying to make life more pleasant for posterity.

7 West Madison Street.

CALCAREOUS DEGENERATION OF THE DORSAL AND LUMBAR AORTAE AS A CAUSE OF BACKACHE

JOHN RIDLON, M.D.
AND
E. J. BERKHEISER, M.D.
CHICAGO

Within the last few years, much attention has been given to the disabilities and painful conditions of the feet as a result of disturbance of the circulation in them, which has been termed intermittent claudication. Much has also been written and said about various etiologic factors in the production of backache. Pain in the back as a result of pathologic conditions arising from disease or from traumatic factors is easily explained to the clinician, but in certain cases in which there is no evidence of pathologic change to be found in the roentgenograms of the bones and joints, it is more difficult to explain the cause of the symptoms. In most of the literature on this subject, the writers have devoted most of their time to explaining the cause of the so-called idiopathic backaches on the basis of some abnormalities within the pelvic viscera in the female and of sacro-iliac disturbances in both the male and the female.

Fig. 1.—Calcified aortic walls in Case 1. The arrows were supposed to indicate osteo-arthritic changes in the vertebral column.

Since it has become generally recognized that discomfort in the feet is due to an impaired circulation, we have thought it fair to assume that discomforts in other parts of the body as well may be due to impaired circulation in the muscles of the particular part.

The factors entering into the cause of pain and stiffness in the back are many, and far from easily recognized. We trust that the addition of one more factor will not add to the confusion, but will, on the contrary, let into the darkness one small ray of light.

For years, we have known that circulatory disturbances were associated with muscular pain and stiffness. For a few years, we have understood the significance of the so-called "intermittent claudication." But only comparatively recently have several orthopedic surgeons, working independently, recognized calcareous degeneration of the arteries in the feet as a cause of pain in the feet, and, recognizing the cause, they have been able to relieve the sufferers from the additional painful burden of metal arch-supports and flat-foot plates. We recognize the relation between arthritic spurs on the bones of the feet and calcareous arteries in the feet. Bone spurs are a cause of sensitiveness to pressure, and, when in close relation to joints, to movement; but they are not a cause of pain: pain is due to the circulatory changes. In the same way in the back, bone spurs and bridges cause sensitiveness and stiffness, but it is the circulatory changes that are responsible for the pain. This is not a new thought, but we believe that heretofore it has not been demonstrated that the calcified arteries are connected with back pain, although it was suggested as a possibility by J. R. Hunt.[1] This is what we have to show in this paper.

From the beginning, we were very skeptical of "slipped" and "strained" sacro-iliac joints as a cause of low back pain, but we rocognized, of course, arthritic changes in those joints. We have long recognized congenital malformation at the lumbosacral junction as a local element of weakness and a basis for complaint particularly following muscular and ligamentous strains from traumatism; but there are very large numbers of painful backs for which one is unable to account satisfactorily, except by such vague terms as "rheumatic" and "arthritic." We have known that bone spurs during the process of formation, and before they can be demonstrated by roentgenograms, may be more sensitive to pressure and to movement than after they are readily demonstrable; but there is no reason to suppose that they are a cause of pain unless impinging on some nerve, a fact to be inferred from the distribution of pain.

Pain, then, must arise mainly from circulatory changes; changes that give loss of expansibility and contractibility, and hence to ischemia of the musculature. Seeking diligently for the cause of pain among our cases, we have been able to demonstrate, at least to our own satisfaction, calcareous degeneration in both the thoracic and the abdominal aorta without other roentgen-ray evidence of pathologic conditions of bone or joint as a cause of backache. We present herewith three cases.

REPORT OF CASES

CASE 1.—Mrs. R. M., aged 58 years, Jewish, had had backache for twelve years. It came on without known cause. Several months previously, she had been under the care of Dr. Maury of Memphis, Tenn. She had never had rheumatism or tonsillitis. She had five children, and had never had trouble after childbirth. All of the teeth had been extracted a year previously. A roentgenographic report of

1. Hunt, J. R.: M. Rec., 1905.

June 7, 1921, by Dr. Conley of Memphis, Tenn., read: "Region requested: The lumbar, lower dorsal and sacro-iliac regions. There is a chronic osteo-arthritis involving the spine from the lower dorsal region down including the sacro-iliac. You will note a distinct loss of bony salts. In the lower lumbar segment there are areas of increased bone density. Exostoses are present in quite a number of regions being seen as high as the eleventh dorsal. There is decided displacement of the fourth lumbar vertebra on the fifth toward the left, with a distinct rotation causing quite a sinistral scoliosis. The sacro-iliac joints present fairly definite evidence of disease, more decided, perhaps, on the right. There appears to be some enlargement of the right kidney."

Our reading of the roentgenogram (Fig. 1) does not entirely agree with this interpretation. We do not see any bone spurs typical of osteo-arthritis, and areas indicated by arrows made by the roentgenologist do not, to us, confirm his opinion. We do, however, observe calcification of the aorta to a marked degree.

Examination.—There was no deformity of the vertebral column except a little bowing to the left in the lower lumbar region. The lower portion of the spine was somewhat stiff to voluntary bending forward. There was no discomfort on raising either limb with the knee straight or bent.

We advised consultation with an internist, to whom we reported our findings.

CASE 2.—*History.*—An unmarried woman, aged 68 years, examined for Dr. Wilbur E. Post, April 2, 1922, at the Presbyterian Hospital, Chicago, and who was so extremely deaf that it was not possible to get a satisfactory history of her condition, had stumbled and fallen about a year and a half before, and since that time had suffered from pain and stiffness in the lumbosacral region.

The record at the hospital reads: "Prior to October, 1919, she had been perfectly well, but at that time had entered the hospital on account of weakness. The diagnosis was 'arterial hypertension and secondary anemia.' In September, 1920, she twisted her back, when she stumbled. She was in bed four or five months, after which she became quite well, except that on one occasion, on reaching to the floor for a handkerchief, she was unable to straighten up. During 1921, she became worse and, following a 'cold' in January, 1922, the pain in the back became aggravated."

Examination.—When the patient stood, there was no spinal deformity. The back was quite stiff, making it difficult to bend in any direction. The patient could sit up in bed only when the legs were hanging over the side. Lying face downward was difficult, and in this position the spine was rigid and there was resistance in the psoas muscles on both sides. Roentgenograms show two vertebrae, one apparently the sixth dorsal and the other the upper lumbar, and possibly the second lumbar, somewhat wedged, being thinner in front. Nothing abnormal was seen in the lower lumbar region. The transverse view showed the aorta calcareous throughout the entire length of the region (Fig. 2).

Fig. 2.—Calcification of the aorta in Case 2.

CASE 3.—*History.*—A man, aged 31, a fireman, referred by the Drs. Blim, Chicago Heights, Ill., Dec. 9, 1922, for about four years, had had backache, which was steadily growing worse. No pain was present when the patient was at rest, but it developed on movement. The patient had typhoid prophylaxis in 1918; and the back began to give him trouble about two months later. No history of venereal disease or any other diseases since childhood was elicited. The tonsils were removed four years previously. Nine teeth were extracted one year previously without relief of the back symptoms. The patient was not constipated.

Examination.—The patient was a large, muscular man. No real deformity of the spine could be seen when he was standing, stripped. Voluntary bending from side to side was restricted one half. When he lay face downward, the dorsal spine was bowed somewhat backward. This we believed to be due to his occupation. Neither thigh could be hyperextended freely, and the entire spine was quite rigid to passive bending.

Roentgen-Ray Report (Dr. Hollis E. Porter.)—"There are slightly decreased interspaces, but no great sign of arthritis between the vertebral bodies. Looking through the bodies at the lateral articulations, however, the bone bordering all joint surfaces is very ragged as if the arthritis involved these joints only. The lateral film of the neck gives one the same impression. The sacro-iliacs show a very pronounced melded appearance, particularly on the right side. The joint is unusually visible and ragged."

In addition, we observe the calcareous degeneration of the thoracic aorta, as shown in Figure 3.

COMMENT

Etiology. — Etiologic factors predisposing to arteriosclerotic changes are: (1) syphilis; (2) advanced age; (3) alcoholism; (4) gouty diathesis; (5) nicotinism, and (6) diabetes.

Pathology.—Any condition which tends to diminish the caliber of the blood vessels and thus diminishes the volume of blood supply to the muscles is a predisposing factor. The more important changes in the vessels, which diminish the lumen are: (1) obliterating endarteritis; (2) periarteritis; (3) vasculomotor disturbances with spasm of the arterioles, and (4) senile calcification.

Symptomatology of Intermittent Claudication.—The onset of the condition is insidious and intermittent, with periods of freedom from discomfort. There is a general weakness of the part involved, with associated paresthesia. Pain is not present when the affected part is at rest, but is gradually increased to such a degree of severity with use that the patient is compelled to rest. The characteristic feature of pain in the muscles from ischemia is that it rapidly

disappears with a few minutes' rest, only to return again with the use of the muscles.

The symptomatology in cases of ischemia of the musculature from calcareous blood vessels is somewhat different, the patient complaining of stiffness, muscular

Fig. 3.—Calcareous degeneration of the thoracic aorta in Case 3.

weakness, paresthesias, aches, soreness and pain of the part involved. This pain is somewhat exaggerated with use, but it is constantly present over longer periods of time, weeks or months, when it may disappear and the patient be comfortable for a long time.

These periods of freedom from discomfort may be due to the establishment of a better collateral circulation.

CONCLUSIONS

No examination of a painful back is complete and conclusive without an examination of the circulatory system.

The treatment of many painful backs ought to be directed by the internist and not by the orthopedist.

The routine employment of girdles, braces and plaster jackets and extension in bed is worthy of our earnest skepticism in the treatment of painful backs.

7 West Madison Street.

Reflex Symptoms in Chronic Appendicitis.—Pain and tenderness in the right iliac fossa do not necessarily mean appendicitis. Constipation, nervous apprehension of appendicitis in a half-educated public, too solicitous, and deep palpation on the part of conscientious medical men, and pyelitis are common causes of these symptoms. An actually inflamed "chronic appendix" is, in fact, a rare condition, though even thickened and pus containing organs may be present for long periods and give rise to dyspepsia and colic attacks, often with slight fever. Careful examination for reflex signs during or just after these attacks may be helpful in deciding the diagnosis.—J. A. Ryle, *Clin. Jour.* **52**:139 (March 21) 1923.

HEMORRHAGIC OSTEOMYELITIS

REPORT OF CASE

MAX STRUNSKY, M.D.
Orthopedist, Beth David Hospital and Hospital for Joint Diseases
NEW YORK

This case has a direct bearing on the differential diagnosis of joint diseases. Though excellent surgeons attended the patient, a correct diagnosis was not made for at least half a year. In the meantime the patient not only suffered from the excruciating pain and lameness in the knee as incidents of the disease, but also suffered from the indifferent diagnosis and the empiric treatment.

REPORT OF CASE

History.—A woman, aged 30, in good health, fell off a street car and struck her knee with considerable force on the car rail. She felt at the time that she was seriously hurt; but, after a short period of rest, the swelling subsided and apparently she fully recovered. She remained perfectly well for two months. One day she felt a pain in the knee. This continued to grow worse. She also noticed that she was tilting her body instinctively to favor the affected limb. This made her walk lame. She consulted, as it happened, a number of excellent surgeons. One of them placed the limb in a plaster case for about six weeks. When the cast was removed, she found that the pain recurred, and that during the interval the limping grew worse. She then went to another surgeon, who gave her a course of antisyphilitic treatment. This proved futile. Finally, she applied for treatment to an institution, where she was treated with baking, massage and the high frequency current. In spite of faithful treatment with physiotherapy, however, she was rapidly growing worse. At this stage she began having paroxysms of pain in addition to the deep, burrowing, gnawing but remittent pains she described as having had before. When these paroxysms seized her, she

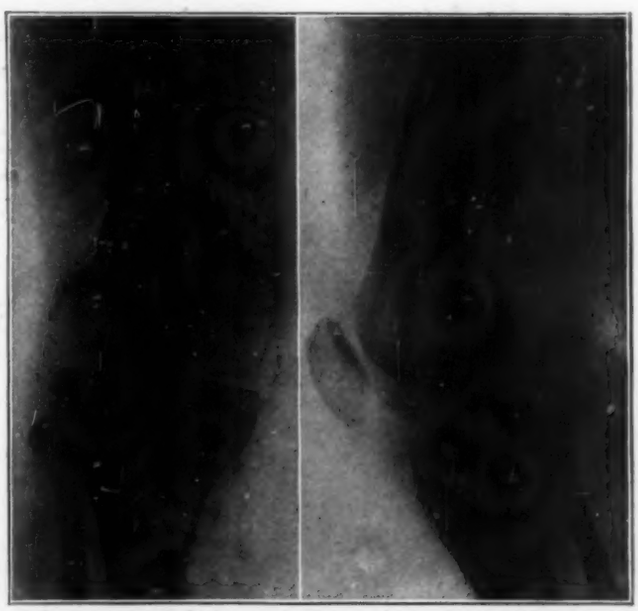

Fig. 1.—Hemorrhagic osteomyelitis occupying entire upper part of tibia.

suffered cruelly. As she was obliged to put less weight on the affected limb, her lameness grew worse. This became especially manifest when she attempted to walk up the stairs, which she could do only by clutching the banister with both hands and dragging herself up by the aid of her arms and the sound leg. Walking down the stairs was impossible.

Examination.—At this stage, I saw her. I was able to elicit few physical signs, in spite of the pitiful complaint by

the patient. The body examination was negative. The knee was not enlarged, looked normal, and had good motion. Were it not for the subjective symptoms, the knee could have been pronounced normal. In fact, the patient said that on several occasions the knee was declared normal by physicians. On closer examination, however, a fulness and a sense of tenseness on the inner and upper part of the tibia were noticed. The roentgenogram showed a cavity occupying the entire upper part of the tibia. In some parts of the wall of that cavity the cyst wall was ballooned, undoubtedly because of the intracystic pressure on the frail wall, while in other parts the cyst wall was worn to thinness. Malignancy was excluded by the fact that the cavity was circumscribed and that there was no break in the periosteum.

Operation and Result.—April 10, 1920, an incision was made on the upper and inner part of the tibia. At that point the tibia was trephined. A large cavity filled with viscid degenerated, bloody material was revealed. By the aid of a large curet, the contents were scooped out. Later the curettage was continued with gauze, as it was feared that an instrument would penetrate the walls, which were found to be very thin. The cavity was so large that I could have easily inserted two fingers. The cyst was swabbed with iodin and alcohol. The incision was then enlarged over the entire length of the tibia. With the circular Albee saw, parallel cuts were made and the entire crest of the tibia removed. Then the graft was cut into fragments and dropped into the cavity.

In spite of the large portion of bone removed, only about one third of the cavity was filled. The crest of the tibia of the healthy side could easily have been made use of, and even then the cavity would not have been filled; but this was not thought advisable. Besides a few skin stitches getting loose, a slight hemorrhage and oozing of serum, the subsequent history was uneventful. At no time was there pus formation. The patient's pain gradually wore off, and she was able to put more weight on her limb. It took eighteen months for the complete regeneration of bone. At the end of that time the patient recovered entirely. She felt well, and walked and ran as well as ever.

Fig. 2.—Eighteen months after operation: Cavity converted into bone, though numerous spaces still persist; crest of tibia regenerated.

COMMENTS

1. Undoubtedly, some surgeons will disagree with the radical manner in which the operation was done. The late Dr. George Berrie, who witnessed the operation, told me that I uselessly sacrificed the crest of the tibia, and that the patient would have recovered with a less radical operation. However, the action of each individual is influenced by his own experience. I have observed a number of failures from conservative surgery in this disease. A typical case was that of a man with osteomyelitis of the radius. The operation performed on him was the cutting of a window into the cyst, curettement of the contents, traumatization of the wall of the cyst and the swabbing of the cavity with iodin and alcohol. Then the incision was enlarged, and with an instrument especially devised for the purpose, bone shavings were cut and dropped into the cavity. Either the bone shavings were too thin and were easily washed away by the blood current, or for some other reason the expected osteogenesis failed to take place. The roentgenogram of the cyst taken eight months after the operation was about the same as the one taken just before the operation. The same cavity persisted. This case and a number of other cases, and the fact that the bone cyst was an unusually large one, perhaps the largest osteomyelitis case affecting the tibia on record, impelled me to decide on the more radical procedure.

2. This is purely of academic interest, and relates to the behavior of the bone fragments in the cavity as studied by a series of roentgenograms taken at intervals throughout convalescence. In this case the fragments acted as a bridge over which new bone grew. Furthermore not only did the fragments retain their original shape and contour, but their position had not changed the slightest from the chance position they occupied at the time they were first thrown haphazard into the cavity, except that new bone grew over and around the fragments. There is a difference in density between old and new bone, and this made the lines of the original fragments stand out in broad relief. Osteogenesis, even at the end of two years, did not completely fill the cavity. There were still empty spaces left, and a number of interstices between the fragments persisted. Clinically, however, the patient recovered entirely, much before the osteogenesis converted the cyst into bone. It took about one fourth of the time to regenerate the tibial graft as compared with the cyst itself.

I discovered a roentgenogram taken about a year before I saw the patient. Besides showing a slight atrophy of bone, this certainly gave no hint of the gross pathologic changes which the roentgenogram taken of the same parts only a year later was destined to show.

Many hemorrhagic osteomyelitis lesions exist without symptoms. Their discovery is often purely accidental, being brought about when a patient sustains a fracture caused by a comparatively slight trauma. The roentgen ray shows that the reason for this disproportion of trauma and damage is a cyst which has thinned

the walls of the bone to such an extent that even an insignificant injury causes a fracture of the bone at the weakened point. My patient belonged to another variety, in which the symptoms preceded the roentgenologic appearance of the lesion. The old roentgenogram which I discovered and which gave no hint of such a lesion was taken of the patient when she limped and had pain in the knee for about six months. At that time the plaster-of-Paris cast had already been discarded; antisyphilitic treatment had already been given a thorough test, and the patient was being treated with physiotherapy. How much longer it took before the roentgenographic evidence of this lesion became positive is only speculative in the absence of more roentgenograms. Omitting the various theories to explain such an occurrence, the fact remains that the symptoms in this case preceded for some time the roentgenologic appearance of bone liquefaction and absorption. At present it is the roentgen ray that is relied on not only for the diagnosis of bone lesions, but also for their classification of kind and variety. The negative roentgenogram rules out this entity, with the result that the patient is treated for another, often for a minor disease. Unless the lesion is small, a favorable prognosis in osteomyelitis in the formative stage is inconsistent with bone liquefaction and absorption. For such a patient to get well he must sustain either a pathologic fracture which has the power to whip into life the osteogenic process, thus repairing the bone defect, or he will face the second alternative of being compelled to undergo a surgical operation. The warning to keep this entity in mind, especially to those who treat accident cases, is another reason for reporting this case. One should be on guard when trauma is followed by an apparent recovery and followed again by symptoms.

236 West Seventieth Street.

Fig. 1.—Large area of angioneurotic edema which appeared in five and one-half minutes after exposure of the skin to sunlight for two and one-half minutes. The irregularities in the figure were due to a shadow cast by the hands holding three pieces of square colored glass in contact with the skin. The shape of the shadow cast by the hands was modified slightly by the artist to illustrate better how closely the edema followed the outlines of the colored glass.

The Hospital and the Family.—Of the greatest importance in this scheme of education will be the acceptance by the hospital of the family as its unit of responsibility. The fact that the hospital wards represent but one piece of the machinery in any health program, that the dispensary, the health station and all their scientific equipment, with their varied and adequate personnel, even the home, the occupation, and the recreation of the individual case are part of this project, will insure that case technic not less than case experience shall be included, throughout the professional preparation of the nurse. There must be such provision of paid staff for the care of the patients as will enable each student to secure a complete cycle of experience and a reasonably close correlation of theory and practice as expressed in nursing procedures, problems of nutrition, etc.—A. W. Goodrich, *Hospital Social Service* **7**:172 (March) 1923.

URTICARIA CAUSED BY LIGHT

PRELIMINARY REPORT

W. W. DUKE, M.D.

KANSAS CITY, MO.

This case of urticaria caused by exposure to light is reported because of its minute resemblance to the urticaria that occurs as a result of allergy. It is not reported as a case of allergy because of doubt as to whether it is actually an example of altered reactivity in the stricter sense of the word. It is possible that it is a case of normal reactivity toward a substance not ordinarily produced in the skin under the influence of light.

Examples of sensitiveness to light are well known in medical literature, especially in relation to the diseases hydroa vacciniforme, xeroderma pigmentosa, and pellagra. The reaction has been attributed by many observers (Pfeiffer,[1] Betz and others) to the presence in the blood or tissues of photodynamic substances, such as hematoporphyrin.[2]

It was discovered accidentally by Raab that many fluorescent substances, such as eosin, fluorescein and hematoporphyrin, are photodynamic; that is, under the influence of light, they possess certain remarkable qualities that they do not possess in the absence of light. Photodynamic substances, harmless in the absence of light, may be highly toxic to human beings or animals under the influence of light, and may destroy bacteria or protozoa, modify the activity of enzymes, or even alter the structure and reactions of proteins. As an interesting illustration of the latter action, Dr. W. H. Howell reports that a solution of fibrinogen, if mixed with eosin or hematoporphyrin and exposed to the light, becomes incoagulable with heat at 90 C., and incapable of forming fibrin, after the addition of thrombin to the solution.

The type of case that I report, although very rare, is not unknown in medical literature, and on account of the striking peculiarity of the illness, I do not doubt is described in the very early literature. The earliest description which I found, however, after a casual search, is that of Ward,[3] who, in 1905, reported the case of a patient who, during a period of four years,

1. Pfeiffer, H.: Der Nachweis photodynamischer Wirkung fluorescierender Stoffe am lebenden Warmbluter, in Abderhalden's Handbuch der biochemischen Arbeitsmethode **5**: 563.

2. An excellent review of the literature is given by Senear, F. E., and Fink, H. W.: Hydroa Vacciniforme, Arch. Dermat. & Syph. **7**: 145 (Feb.) 1923.

3. Ward, S. B.: Erythema and Urticaria with a Condition Resembling Angioneurotic Oedema Caused Only by Exposure to the Sun's Rays, New York M. J. **81**: 742, 1905.

became increasingly sensitive to sunlight and whose skin reacted with the formation of itching hives similar to my case, even in the detail that she was sensitive only to rays at the violet end of the spectrum. A similar case was reported by Ochs,[4] in 1910.

Interesting in this connection is a report by Betz, who, in studying hydroa vacciniforme, sensitized himself to light by the intravenous injection of 0.2 gm. of hematoporphyrin. Immediately afterward he found himself so sensitive to light that he dared not expose himself to direct sunlight for more than a few moments at a time. Shortly after the injection, typical absorption bands of hematoporphyrin were found on spectroscopic examination of the blood serum and urine. Hematoporphyrin disappeared from the blood serum and urine after a few days, so that, to account for his sensitiveness to light, which persisted for several months longer, he assumed that a portion had remained in the tissues.

Immediately after the injection, Betz exposed a small area on his arm to the Finsen ray. A marked reaction followed shortly, which ended eventually in a deep ulcer, which healed slowly and produced a scar. This reaction he thought analogous to the eruption of hydroa vacciniforme. Shortly afterward he exposed his face to sunlight, with the result that an itching, edematous eruption appeared which almost obliterated his features, and did not subside for several hours. For several months after this, exposure of his skin to sunlight invariably caused edema and itching, the duration of which varied according to the length of exposure to the light. His sensitiveness to light disappearing during the winter, several months after he had given himself the injection.

Fig. 2.—Hives which appear after short exposures of the skin to sunlight; these became confluent on longer exposure, resembling the area illustrated in Figure 1.

My patient became sensitive to light without apparent cause; but the case seemed similar in other respects to that of Betz, produced artificially with hematoporphyrin, and, as previously mentioned, resembled closely the urticarial reaction of allergic individuals occurring as a result of contact with substances to which they are hypersensitive. In view of Betz' report, however, one might object to this illness being considered allergic in origin, for in his case hypersensitiveness to light appeared in an apparently normal man immediately after treatment with hematoporphyrin.

REPORT OF CASE

History.—A woman, aged 43, married, had always been robust and well until four years before I saw her, when she noticed that she was sensitive to sunlight. This condition became worse each year until now she cannot stand one minute's exposure to summer sunlight without paying a penalty.

Two of seven brothers and sisters of the patient are subject to seasonal hay-fever. Several nieces and nephews are subject to hives, to the patient's knowledge. The family history is otherwise of no interest. The father died when the patient was young, and the mother had no marked evidence of allergy so far as the patient knew. The past history was negative except for scarlet fever as a child, and slight arthritis.

At about the time of onset of the patient's illness, her face, neck and arms were exposed to sunlight for several minutes when she was swimming. Severe itching, redness and edema of the exposed parts caused her to seek shade as quickly as possible. The swelling persisted through the night and through the following day, and was associated with chilly sensations, marked weakness and malaise. After she remained in the house forty-eight hours, the skin became natural again in every respect, and she felt well. She had a similar experience later, after answering the telephone when thinly clad. She had not noticed at the time that the sun was shining on her. For the last two years she has protected herself with the greatest care from light, wearing black gloves and a heavy black veil whenever she goes out of the house. In spite of this care, some of the more thinly clad parts of her body are often sufficiently exposed to cause itching, redness and swelling, which often persist for several hours. She has noticed that after the skin has been exposed and reacted to sunlight, further exposure on the same day causes less or little ill effect in the areas previously exposed. On one occasion, after exposure of the face to sunlight she was momentarily blinded, and following this all objects appeared yellow for several minutes.

Examination. — This was negative except for a slight grade of obesity, a slightly enlarged thyroid gland, and bad tonsils. Urinalysis was negative. Neither the color nor the absorption spectrum of alkaline hematoporphyrin was found in the urine on several examinations. Blood examinations were negative. The Wassermann reaction was negative. No hematoporphyrin was found in the serum on several examinations. Roentgen-ray examination of the teeth, sinuses and gastro-intestinal tract were negative.

Intracutaneous tests with all the common meats, vegetables, dairy products, fruits, sea foods, nuts, condiments, grains, bacteria, pollen and extracts from animal hair and feathers were negative.

The application of mechanical irritants (rubbing, scratching and intracutaneous injections) and chemical irritants (even chloroform applied to the skin and covered with the hand until it caused pain) produced no perceptible effect on the skin.

Exposure of the skin to sunlight over any area which was usually covered by clothing gave rise in two and one-half minutes to marked itching and erythema. This progressed without additional exposure to a typical itching hive covering the entire area exposed in five and one-half minutes (Fig. 1). The redness and edema would appear with almost clocklike regularity if the time of exposure was sufficient (two and one-half minutes or more of afternoon sunlight during the month of March). The reaction differed from a hive only in the lack of a tendency to spread indefinitely The edema never spread over areas not exposed to light. In this respect the reaction resembled dermographia more than it did urticaria.

4. Ochs, B. F.: Case of Urticaria Caused by the Sun's Rays, M. Rec. **78**: 193, 1910.

Exposure of the skin to the light of a 500 watt nitrogen lamp gave rise to a similar reaction, but more time was required. Sunlight filtered through colored glass, except violet glass, had no perceptible effect on the skin after ten minute exposures. Sunlight, filtered through violet or colorless glass, produced a hive in the same manner as the unfiltered light, except that a little more time was required. Exposure of the skin to heat, roentgen ray, or ultraviolet ray as produced by a mercury vapor quartz lamp, and sunlight filtered through Wood's nickel oxid glass, produced no visible effect on the skin after exposures of from three to five minutes.

An application of sunlight to the skin for two and one-half minutes produced a wheal which would disappear after one or two hours. Application of light to the skin for ten minutes produced a wheal which would not disappear sooner than from six to eight hours. The foregoing data applied to skin areas which were covered by clothing and for this reason were not ordinarily exposed to light. Exposure of the face and neck and arms and hands gave a little different reaction. Exposure of the forearm, for example, gave rise first to discrete hives which, on further exposure, would become confluent (Fig. 2). Exposure of the face for one minute gave rise to a red, blotchy appearance which was very disagreeable to the patient and which was followed for forty-eight hours by small, painful spots. She did not allow us to repeat this experiment. I believe that a longer exposure of the face to light would give an eruption analogous to hydroa vacciniforme.

Tolerance for Light.—To determine whether or not tolerance for light could be increased by repeated exposure, several skin areas were exposed to light for varying periods of time on successive days. Light was applied over two areas in doses too small to have an effect on the skin; that is, for one minute and for two minute exposures on three successive days. This gave rise to slightly increased tolerance for light so that on the fourth day an exposure of three minutes produced no perceptible effect on these particular areas. The skin surrounding them, however, was sensitive as before. The tolerance gained in this way was completely lost after several days, so that future exposures of two and one-half minutes gave rise to the usual reaction. Ten minute exposures on three successive days gave rise to an erythema and a hive in each instance. The hive, however, was delayed in its time of appearance after the last exposure, and the reaction, on the whole, was much less intense and disappeared more quickly.

An area of skin on the left arm was exposed during a period of twenty-four days thirteen times, varying from five minutes to twenty-five minutes. The reaction became successively less intense. The erythema and itching appeared at the usual time, however, in two and one-half minutes. Discrete hives appeared even after the last exposure, but did not give rise to the same confluent area of brawny edema as caused originally by an exposure of three minutes, and also disappeared much more quickly. The arm became slightly eczematous after these repeated treatments, and the study was discontinued. After a period of two months, the tolerance thus gained was completely lost.

In view of the fact that exposure of the face for one minute gave rise to a painful reaction instead of the usual erythema, edema and itching, and in view of the fact that repeated exposures on the arm did not give rise to more complete tolerance, it seemed rather a useless and possibly a harmful experiment to carry this study further. We were actually fearful that repeated long exposures might give rise to a condition similar to hydroa vacciniforme. We concluded that, although relative tolerance for sunlight could be obtained through repeated exposure to light, the tolerance gained in this way was not sufficient to be useful to the patient.

Serum Studies.—Defibrinated blood, untreated blood serum, and serum to which was added eosin, quinin and methylene blue was allowed to stand in the sun for periods of time varying from two hours to twenty-four hours. Each preparation was then injected intracutaneously into normal individuals, the patient, and patients with pollen allergy, with no noteworthy reaction resulting.

To the patient's serum, normal serum, and the serum of a patient with pollen allergy, and to solutions of pollen, horse dander and egg albumin was added hematoporphyrin to a strength of 1:10,000. Each was allowed to stand in the sunlight for from one minute to twelve hours, and, after different intervals of exposure, was injected intracutaneously into the patient, normal patients, and patients with pollen allergy. No noteworthy reaction was produced in normal individuals. Small, itching hives followed the injection of the treated serums (not the other proteins) in the patient. The degree of reaction was not constant. The cause of this has not as yet been worked out. Small hives were obtained by similar injections into several but not all of the other allergy patients. They were not comparable in size, however, with reactions produced with other substances to which they were sensitive. This study is as yet incomplete.

Hematoporphyrin in 1:1,000 dilution was injected intracutaneously into myself, two normal assistants, a number of patients with pollen allergy, and into the patient reported above. No noteworthy effect was observed in any instance except after the area injected was exposed to sunlight. In the case of normal subjects and pollen cases, an intense intermittent stinging sensation followed a two and one-half minute exposure, which became very marked and disagreeable at the end of six minutes. In the case of the patient described above, no noteworthy reaction was observed until the skin was exposed to dim diffuse light. After an exposure of three minutes, a small hive (1 cm. in diameter) appeared at the site of injection. The surrounding skin was not affected by this exposure to light. This reaction, tried many times, was quite constant.

The foregoing two experiments—that is, the ones made by the intracutaneous injection of hematoporphyrin followed by exposure to diffuse light, and the intracutaneous injection of serum after treatment with hematoporphyrin and sunlight, were the only ones in which I succeeded in producing anything in the patient which resembled a hive except by exposure to light as described in the previous paragraphs.

The patient was studied carefully for fluorescence by the use of light from a 500 watt nitrogen light filtered through a Wood's nickel oxid glass filter in a dark room. This filter allows the penetration only of near ultraviolet light, and makes most objects fluoresce. The crystalline lens, sclera, teeth, nails and skin of the patient were observed, and their fluorescence compared with the same tissues of normal subjects. Whereas there was some difference in fluorescence noted, the difference was not striking, and, in several instances, normal persons showed greater fluorescence than the patient.

The patient's blood serum and urine were also studied for fluorescence and compared with those of normal subjects. No constant noteworthy increase was observed. The fluoroscence of the patient's serum was not nearly so great as normal serum to which was added a trace of hematoporphyrin, quinin or eosin.

Exposure of the skin to sunlight under a glass slide pressed on the skin so firmly as to render the skin almost bloodless gave about the same reaction as that produced in the uncompressed area surrounding the glass slide.

It was concluded that, although the blood might possibly contain some photodynamic substance that could render it toxic, the chief source of the reaction probably resided in the tissues.

This condition seems to be a clinical entity, and for it the name "solar urticaria" is suggested.

SUMMARY AND CONCLUSIONS

The case here reported is interesting in that a woman with a family history of allergy spontaneously became so sensitive to light that on exposure of the skin to the direct sunlight of a winter month for two and one-half minutes typical itching hives, associated with erythema of the skin, invariably appeared over the entire area exposed. The reaction differed from the urticaria of allergic individuals after contact with substances to which they are hypersensitive only in the fact that it had no tendency to spread with pseudopod formation

beyond the area exposed to the irritating agent. This reaction was produced only by the blue violet rays of light.

Constitutional symptoms were felt on two occasions when a large area of skin was exposed to light.

A considerable degree of tolerance was developed by repeated exposure of the small areas of the skin to light. The tolerance gained in this way, however, was lost after a comparatively short time, so that this method of treatment did not appear a rational remedy for the condition.

Efforts to produce hives in this patient by agents other than direct exposure to light failed except in two instances, namely, by the intracutaneous injection of serum which had been treated with hematoporphyrin and exposed to sunlight, and by the intracutaneous injection of hematoporphyrin followed by exposure of the injected area to diffuse light for a short time.

This case may be an example of allergy caused by specific hypersensitiveness to a substance produced in the tissues under the influence of light. Further study will be directed toward clarifying this point.

Waldheim Building.

LATE RESULTS IN THE TREATMENT OF SYPHILIS

H. H. HAZEN, M.D.
Professor of Dermatology, Georgetown University School of Medicine and Howard University School of Medicine
WASHINGTON, D. C.

The literature contains very few references to the late results obtained in handling syphilitic cases. An article by Irvine [1] is practically the only one that occurs in the American literature. It would seem worth while to trace our cases and find out exactly what the results have been.

Up to the time when this study was begun, 230 syphilitic patients had been under treatment in my office for a considerable space of time. Patients coming in for one or two visits are not included. Table 1 shows during what stage of the disease the patients were first seen, the number which were lost sight of, and the cases which were followed. A considerable number of patients are still under active treatment or observation, and these, of course, cannot be referred to in this article.

TABLE 1.—*Condition of Syphilitic Patients Seen*

	Number of Cases	Chancre	Secondaries	Late	Central Nervous System	Congenital
	230	29	60	103	25	13
Lost sight of.....	109	16	23	54	7	9
Followed.....	77	8	24	32	12	1

The results in these cases are shown in Table 2. Some explanation of the headings is demanded. By cured is meant that for two years since the last treatment the patient has been asymptomatic, with the Wassermann reaction negative, and that the spinal fluid is negative. By clinically and serologically well is meant the same thing except that the spinal fluid has not been examined. The patients considered as clinically well are those who have not had Wassermann tests of the spinal fluid or the blood. Clinically arrested is the term applied to patients suffering from syphilis of the central nervous system, and simply means that the disease process has been stopped, although, of course, the old damage to the central nervous system has not been repaired. A number of patients have died from diseases other than syphilis, and it is impossible in some instances to say whether or not this disease is indirectly responsible. It is, of course, realized that the word "cure" is misleading, for at present there are no satisfactory criteria as to a real cure. Fordyce has told

TABLE 2.—*Results*

Stage of Disease	Cures	Clinically and Serologically Well	Clinically Well	Clinically Arrested	Progressive	Dead from Syphilis	Dead from Disease Other Than Syphilis
First.....	3	...	...	...	...	1	...
Second.....	10	7	1	...	...	...	...
Third.....	4	3	3	...	...	3	6
Central nervous system.....	...	...	1	6	2	2	1
Congenital.....	...	...	...	...	...	...	1

me of one patient who remained asymptomatic and Wassermann negative for seven years, only to relapse at the end of that time. Even while this paper was being prepared, one of my late cases, in which the patient had apparently been both clinically and serologically well for six years, has serologically relapsed.

It will be noted that out of eight chancres treated, only three were cured. In seven instances, the patients suffering from an initial lesion were treated with: (1) eight injections of arsphenamin, or, much more rarely, a few scattered injections of neo-arsphenamin at three-day intervals; (2) mercury in the form of weekly intramuscular injections of mercuric salicylate; (3) from six to eight injections of arsphenamin at intervals of from five to seven days, and (4) intramuscular injections of mercury or inunctions for four months. The three patients who were cured had this treatment. Four of the patients who were not cured also had the same treatment. In two instances, there was both a clinical and a serologic relapse within one month after discontinuance of treatment. This may be assumed to be due to the fact that the arsphenamin was started before the patients had a chance to build up any natural immunity, and that when the spirocheticidal drugs were withdrawn, latent organisms promptly developed without any resistance on the part of the hosts. In the third case, a speedy serologic relapse was discovered to be due to an infection in the central nervous system. This patient received his first treatment within three days after the appearance of the chancre. This proves that infections of the central nervous system can take place by the time the initial lesion is manifest, and that early spinal puncture is imperative in order to discover such a condition. In the fourth instance of failure, the patient suffered a serologic relapse eighteen months after her last treatment. The fifth instance of failure is especially interesting. The patient's chancre was diagnosed within two weeks of its appearance, and the patient received, by way of treatment, seven injections of arsphenamin at weekly intervals, and mercury, for one year. For the following two years, he gave neither clinical nor serologic signs of the disease. A provocative Wassermann test was then done and found negative; however, a luetin reaction was suggestive. Within three weeks, he suffered from an attack of neurosyphilis consisting of a sixth nerve paralysis. Under intravenous and intraspinal treatment he completely recovered from this, but six months after treatment was discontinued, he suddenly fell dead, and

1. Irvine, H. G.: Two Hundred and Fifteen Cases of Syphilis After Five Years, J. A. M. A. 77: 1620 (Nov. 19) 1921.

necropsy showed that death was due to a ruptured cerebral vessel. This case will illustrate the need for routine spinal puncture, and not only the fallibility, but also the positive danger, of a provocative Wassermann test.

The results of the treatment of early secondary syphilis are surprisingly good. Out of our twenty-four cases, there are ten which have filled the criteria of cure; seven in which the patients are clinically and serologically well, and one in which the patient is clinically well, while there are up to the present time six known failures. All of the cured or well patients, save two, received treatment which was practically identical with that described under chancre, except that the second course of arsphenamin consisted of eight instead of six arsphenamin injections, and that a third course of mercury was given two months after the cessation of the second course. Two cured patients were treated only with arsphenamin. One patient received ten injections of neo-arsphenamin at weekly intervals, and in the second case the patient received one monthly injection for eight months. Of the six failures, only one patient received a full course of treatment. The other five received only a single course of arsphenamin and a course of mercury varying from three to twelve months in duration. This would seem to show that arsphenamin is more important than mercury in the cure of syphilis; that patients can be cured by arsphenamin alone, and that those who received two full courses of arsphenamin did much better than those receiving but one.

None of the cases of late syphllis were treated with the idea of radical cure; hence, many different methods of therapy were employed. A few were treated with mercury alone, while the majority were handled by alternating courses of arsphenamin and mercury, from four to six injections of the former being given in a course at weekly intervals. The results of treatment were extremely discordant. Some of the patients who received a very limited amount of treatment did extremely well, and some who were thoroughly and persistently treated speedily relapsed. Four patients are listed as cured. One of these received four injections of arsphenamin and three months of mercury injections. He has been well five years. Another received two injections of arsphenamin and six months of mercury. He has been well for eight years. Another received but one injection of arsphenamin, and yellow mercurous iodid pills for three months. She has been well for nine years. A fourth patient was treated six months with mercury injections, and has been well for nine years. Among the clinical and serologic cures, it may be found that three patients received six injections of arsphenamin, and that they have been well for four years. However, these results must not be taken too seriously, for another case which was to be included in this category, after being followed for six years, has just shown a serologic relapse. Among the sixteen failures, we find that one patient was treated only with mercury, that two received only arsphenamin, and that the remainder received both mercury and arsphenamin. The only conclusion that can be drawn from this group of cases is that it is apparently possible to cure certain cases of late syphilis, and that in a few instances a cure can be effected by almost any type of treatment, whereas in many other cases, the most thorough treatment will be followed by a more or less speedy relapse. Apparently, however, the more thorough the treatment, the longer the asymptomatic and Wassermann-negative period.

In the handling of the central nervous system infections, the principles laid down by Fordyce have been followed. A number of cases have been seen which refused to respond to intravenous therapy and which were speedily cured by Swift-Ellis treatment, the cure being evidenced by the return of the spinal fluid to normal, and a freedom from clinical disturbances, although, of course, certain changes in the reflexes usually persisted.

In view of the fact that only one case of congenital syphilis was followed, it is naturally impossible to discuss the results of treatment in these cases.

DEATHS

The deaths from syphilis naturally demand analysis. Of seventy-seven patients, fourteen are dead, which is considerably more than one would naturally expect. Table 3 shows the causes of death.

Two of the cases of the central nervous system and one with syphilis of the mediastinum were greatly advanced when the diagnosis was first made. The patient with an aneurysm lived for four years after the treatment was instituted. The death of one patient who was first seen with a chancre has already been discussed.

Four patients died as the indirect result of syphilis. One of these had arteriosclerosis, and died from a mercurial nephritis; the second died from cancer of the tongue secondary to a syphilitic glossitis; a third committed suicide shortly after learning that he was suffering from syphilis; the fourth patient died from a meningitis occasioned by a lumbar puncture.

TABLE 3.—*Causes of Death*

Stage of Disease	Ruptured Aneurysm	Cirrhosis of Liver	Cerebral Hemorrhage	Mediastinal Pressure
First	...	...	1	...
Second	...	...	...	1
Third	1	1	...	1
Central nervous system	...	...	2	...

Four patients died from intercurrent disease; two from myocarditis; one from a probable lymphosarcoma, and one baby with congenital syphilis, from pneumonia.

Only one patient who died from syphilis had anything like adequate treatment. Not one of the others received more than two injections of arsphenamin, and two or three months of mercury. Hence overtreatment can hardly be said to be responsible for any of these deaths.

CONCLUSIONS

There are no satisfactory criteria as to the cure of syphilis. The relapses may occur after a patient has remained asymptomatic and Wassermann negative for six or seven years.

Not all cases of early chancre are cured by modern methods of treatment. In certain instances it is possible that the early and intensive administration of arsphenamin may prevent a patient from developing a natural immunity, and a relapse will occur very shortly after treatment is discontinued. From this it might be argued that treatment should not be begun within the first few days of the appearance of a chancre, but the majority of syphilologists would undoubtedly contend that treatment should be instituted at once, with a view of preventing the possible spread of the disease.

Cerebrospinal syphilis can develop by the time the chancre is manifest.

Every patient should have a routine spinal puncture done, preferably just before the second course of arsphenamin is administered.

A provocative Wassermann reaction may be misleading. It may be distinctly dangerous to the patient, in that a relapse may follow it. It is certain that insufficient treatment could produce the same results.

A luetin reaction done under proper precautions may be of some value as a criterion of cure.

The results of treatment in early secondary syphilis are surprisingly good.

Arsphenamin alone may effect a cure.

Apparently arsphenamin is more important than mercury in effecting a cure, for there has been a much higher percentage of cures when two courses of arsphenamin were employed than when but one course was used.

A few cases of late syphilis can be cured, occasionally by a small amount of treatment.

In the vast majority of instances, late syphilis cannot be cured.

Apparently, in some instances, syphilis is a mild infection and is readily cured; in other instances, it is a severe infection and cannot be cured.

Intraspinal therapy will often yield results when intravenous therapy fails.

Syphilis is not a benign disease. Many deaths are due to it either directly or indirectly.

1912 R Street.

INTRACUTANEOUS REACTIONS IN PERTUSSIS *

THOMAS G. HULL, PH.D.
AND
RALPH W. NAUSS, M.D., DR.P.H.
SPRINGFIELD, ILL.

The reports of Modigliani and de Villa [1] and of Orgel [2] in the diagnosis of pertussis by intracutaneous reactions encouraged the medical world to hope that progress was being made in the control of this disease.

Modigliani and de Villa made intracutaneous injections of a suspension containing a loopful of pertussis culture in 1 c.c. of distilled water. No reaction was obtained in diseases other than whooping cough, while an inflammatory reaction formed constantly in thirty-eight children with pertussis. Normal children gave negative reactions. Three children who had been exposed to the disease, but as yet showed no symptoms, gave a positive intracutaneous reaction, and a few days later developed whooping cough.

Orgel used a suspension of pertussis bacilli in salt solution, 2,000 million organisms per cubic centimeter.

Among twenty-five children in various stages of pertussis, all but one reacted positively, this one being in the incubation period. Among thirty children suffering with other troubles, including bronchitic coughs, no positive reactions were obtained. Readings were taken within six hours, and daily thereafter for a week.

Recently, Riesenfeld [3] reported the results of investigations covering a period of four years. Using pertussis vaccine containing 8,000 million organisms per cubic centimeter for the test material, and salt solution for the control, he obtained in fifty-two whooping cough patients positive reactions, while among 112 children apparently immune (either exposed and not developing the disease, or having had the disease), sixty-five reacted positively. Several other test materials were likewise used—vaccines containing 4,000, 8,000, 16,000 and 32,000 million organisms per cubic centimeter, solutions of pertussis "toxin," autolyzed pertussis cultures, and pertussis antigen extracts. In all, 464 children were tested. The author concludes:

> No specific reactions were obtained by the use of various preparations of Bordet-Gengou bacilli injected intracutaneously to prove the presence of the disease or a natural or an acquired immunity. Positive and negative results alike were obtained in children having the disease, in children with an immunity, and in children developing the disease after the injection.

TABLE 1.—*Results After Administration of Freshly Prepared Pertussis Vaccine, Heat Killed*

	A		B	
	Positive	Negative	Positive	Negative
Whooping cough	4	0	3	1
Recovery from whooping cough	8	0	6	2
Recovery from bronchitis	10	1	9	2
Normal subjects	4	1	6	0

In the investigations undertaken by us, nine different preparations were used and 341 injections made intracutaneously. The work was done at an institution housing about 2,000 patients, at which an epidemic of whooping cough was at the time developing. The ages of the children tested in most instances were from 8 to 12 years.

Preparation A consisted of freshly grown strains of pertussis bacilli containing both of Krumwiede's serologic types. The preparation was killed by heat at 60 C. for one hour, and preserved with 0.1 per cent. tricresol. The dosage was 0.5 minim.

Preparation B was likewise a freshly prepared product, being but 3 weeks old. It contained seven strains of pertussis bacilli, killed by heating at 53 C. for thirty minutes, and preserved with 0.5 per cent. tricresol. The strength was 2,000 million organisms per cubic centimeter, the dosage being 1 minim. In Table 1 are shown the reactions obtained with these two materials in definitely known cases of whooping cough, in cases of recovery from whooping cough, in cases of recovery from bronchitis, and in normal children just admitted to the institution and still in the receiving ward. In most instances, the reactions were strongest at the end of five hours, decreasing slightly in twenty-four hours and rapidly disappearing in forty-eight hours. There was no uniformity of results. Nearly all of the children showed positive reactions, but some of the whooping cough cases were negative.

TABLE 2.—*Results After Administration of Preparations C and D* *

	Test C		Control D	
	Positive	Negative	Positive	Negative
Whooping cough	4	0	2	2
Normal subjects	6	0	1	5
Recovery from whooping cough	7	1	6	2
Recovery from bronchitis	8	0	7	1

* Pertussis and influenza bacilli killed without heat.

Preparation C consisted of freshly grown pertussis bacilli killed by the use of chemicals, no heat being

* From the Illinois Department of Public Health, Springfield, Ill.

1. Modigliani, E., and de Villa, S.: The Intracutaneous Reaction for the Early Diagnosis of Pertussis, Pediatria **29**: 337 (April 15) 1921; abstr. J. A. M. A. **77**: 74 (July 2) 1921.

2. Orgel, S. Z.: A Method for the Early Diagnosis of Pertussis, J. A. M. A. **79**: 1508-1509 (Oct. 28) 1922.

3. Riesenfeld, E. A.: Intracutaneous Reactions in Pertussis, J. A. M. A. **80**: 158-160 (Jan. 20) 1923.

employed. The dosage consisted of 1 minim containing 3,000 million organisms per cubic centimeter. As a control, preparation D was obtained from the same manufacturers, consisting of influenza bacilli prepared after the same manner as C.

In Table 2 are given the results of the tests on twenty-six persons. As a rule, the C pertussis material gave a distinct reaction in five hours, still continuing for twenty-four hours, but much lessened in forty-eight hours. The D influenza material gave its strongest reaction in five hours, disappearing in most instances in twenty-four hours. It will be noted that only one person was negative with the C preparation, while ten were negative with the D. Furthermore, the reactions with D, when they did appear, went away much more quickly than with C.

Two more preparations were used, consisting of vaccines that had been killed by heat and allowed to stand for a considerable period and autolyze. The first preparation, E, consisted of a single strain of the pertussis bacillus killed by heating for one hour at 60 C., and preserved with 0.1 per cent. tricresol. It was more than a year old when used. The second preparation, F, contained five strains of pertussis bacilli killed by heating at 54 C. for thirty minutes, and preserved with 0.4 per cent. tricresol. It was 3 years old when used.

In Table 3 are given the results of tests made with F on patients with whooping cough, and on suspects, as

TABLE 3.—*Results After Administration of Preparation F**

	Positive	Negative
Whooping cough	7	0
Whooping cough suspects	16	1
Bronchitis	0	12

* Old pertussis vaccine killed by heat.

well as on other subjects with cough. In this experiment, all of the bronchitis cases were negative. The reason for this apparent discrepancy with tests in other nonwhooping cough cases that gave a high percentage of positive reactions cannot at present be explained. In Table 4 are the results of both of the old vaccines E and F. Some of these subjects are the same as those included in Table 3. Whether there is the possibility of sensitization, as suggested by Riesenfeld, which would cause a higher percentage of positives in the second test, cannot be stated. However, since practically all of these were positive the first time, this factor can be ruled out. In fact, the one negative test with F in the whooping cough case (Table 4) had given a strong reaction previously with F.

In order to determine what factor in the pertussis vaccine was responsible for the skin reaction, some of the old vaccine (the same as used in F) was heated at 100 C. for thirty-five minutes (Preparation G). The results as shown in Table 5 would indicate no thermolabile material in the product, at least so far as skin reactions are concerned. Some of the same original material was then centrifugated at high speed to clear it of organisms, and the supernatant fluid, which was in reality an autolysate of pertussis bacilli, was injected (Preparation H in Table 5). The results were identical with the inactivated whole vaccine G. Some of this autolysate was then inactivated by heating at 100 C. for twenty minutes, and centrifugated at high speed to throw down any precipitate (I). Only a few patients were given Preparation I, but the results in Table 5 show that practically all subjects reacted. It is apparent, therefore, that whatever substance in the vaccine was responsible for the skin reaction, it was in solution and was not destroyed by heat.

All of the tests described so far were made on children of from 6 to 10 years of age. It was desirable to determine whether adults also reacted similarly to pertussis vaccine, such adults being in a normal state of health. Of six adults so tested with Preparation F, four were entirely negative, while two gave reactions

TABLE 4.—*Comparison of Results After Administration of Preparations E and F (Old Pertussis Vaccines)*

	Test E		Test F	
	Positive	Negative	Positive	Negative
Whooping cough cases	11	0	10	1
Whooping cough suspects	11	0	10	1

persisting for ten days. Two of the adults were retested with the same material, F, G (the same material inactivated) being used as a control. One of the subjects who was positive previously reacted this time also with both materials, while the other one who was negative previously, did not react with either material.

This adult reactor then was tested with Preparations B, C and D, and typhoid-paratyphoid vaccine. In every instance, a distinct reaction took place promptly, and persisted for several days. It would seem, therefore, that the reaction is due to an idiosyncrasy of the individual to bacterial substances in general, children showing a greater percentage of reactions than adults.

CONCLUSION

It can be stated that the results of the investigations here recorded do not indicate that preparations of pertussis bacilli can be used intracutaneously to diagnose whooping cough. Freshly prepared suspensions, suspensions 3 years old, suspensions killed by heat and suspensions killed by chemicals gave results that were quite conflicting. Nearly all children, whatever their ailments, gave positive reactions to the material mentioned above. Whooping cough patients at times were

TABLE 5.—*Preparation F (Old Pertussis Vaccine) Compared with G (F Inactivated), H (Autolysate of F) and I (Autolysate of F Inactivated)*

	F	G	H	I
Whooping cough cases (positive)	3	6	6	5
Whooping cough cases (negative)	0	1	1	0
Whooping cough suspects (positive)	2	3	3	1
Whooping cough suspects (negative)	0	0	0	0
Normal subjects (positive)	7	7	7	0
Normal subjects (negative)	1	1	1	0

negative, however. The few adults tested would indicate that they were less susceptible to such materials when injected intracutaneously.

Principle of Selection Is Educational, Not Genetic.—The application of the principle of selection is an educational, a social and economic, perhaps even a political rather than a genetic question. What may be called the negative phase, the prevention of the most degenerate types from reproduction is quite clear. Whether this is to be brought about by isolation or sterilization is a purely technical matter depending on expediency. The result eugenically in either case is the same. But eugenic progress would be painfully slow, if this negative aspect alone were practiced. Positive methods of encouragement of superior types to the greatest possible extent is the only method which will result in any perceptible advance.—P. W. Whiting, *Nation's Health* **5**:136 (March) 1923.

THE ELECTROCOAGULATION METHOD OF TREATING DISEASED TONSILS

FRANK J. NOVAK, JR., M.D.
Attending Otolaryngologist, Cook County Hospital
CHICAGO

Various writers in this country, and, more particularly, in Germany, have recently been advocating the removal of the faucial tonsils by means of electrocoagulation. The virtues ascribed to this method, if they were true, would cast into discard the traditional methods of tonsillectomy. The application of the high frequency current to the tonsil, thereby coagulating it, is a simple office procedure. It is a bloodless operation, quickly performed, requiring no skill, dexterity or experience on the part of the operator. The high frequency current is readily controlled. Under suitable local anesthesia, the procedure can be carried out almost painlessly.

With such obvious advantages, it is easily understood why this method should appeal so strongly to the general practitioner, and, perhaps, also to the specialist. One need but consider the tremendous interest aroused by the recent advocacy of the roentgen-ray treatment of diseased tonsils to understand why any plan which offers certain marked advantages in its administration should immediately find numerous adherents everywhere. Especially is this true when one reviews some of the unfortunate and disagreeable results encountered with tonsillectomy. With perfect technic and the utmost in skill and equipment, tonsillectomy is occasionally a difficult operation. Operative and postoperative hemorrhages are not uncommon, and not infrequently, also, does one experience the chagrin in finding a remnant of tonsil after operation. It is no wonder, then, that any surgeon, specialist or general practitioner is willing to adopt any new procedure which would obviate these well recognized disadvantages.

For some time past, I have employed surgical diathermy in the treatment of malignant growths of the pharynx and larynx. In a large series of patients operated on at the Cook County Hospital, I have so familiarized myself with the technic that I felt qualified to apply the method to the tonsils. One hundred cases were selected for this purpose. The first group of the series consisted of seven cases. The usual local anesthesia was administered. Points to be observed were: (1) the immediate effects of the operation; (2) the extent of the postoperative inflammatory reaction, i. e., the amount of extra tonsillar tissue involved; (3) the degree of inflammatory reaction, and (4) the early postoperative symptomatology.

Then, before the next set of cases were to be treated, the following observations were to be made: (1) the extent and degree of cicatrization within and outside of the tonsillar fossa; (2) the damage, if any, to the palatopharayngeus and palatoglossus muscles; (3) the impairment, if any, of the function of the soft palate; (4) the frequency of otitic complications due to possible damage to Rosenmueller's fossae; (5) the effect on the voice and deglutition, and (6) the thoroughness of the destruction of tonsillar tissue.

TECHNIC EMPLOYED

After a topical application of 4 per cent. cocain solution, the peritonsillar tissue was injected in the usual manner with a solution of 1 per cent. procain. A flat electrode 12 by 12 inches, well moistened with tap water, was applied to the patient's back. This so-called indifferent electrode, because no heat is generated at its place of application, is connected with a high frequency apparatus, generating the d'Arsonval current with a frequency rate of a million or more oscillations per second, and delivering an amperage of from 1 milliampere to 4,500 milliamperes. The active electrodes were of two types, namely, the needle, and a flat button electrode of a diameter of 7 mm. The needle was used in one case, penetrating into the substance of the tonsil, and carrying an amperage of 400 milliamperes. It was inserted into three portions of the tonsil, and the current turned on for fifteen seconds in each place, or, in other words, just sufficient to blanch the tonsil. The other cases were treated with the button electrode and with currents for the respective tonsils of from 400 to 1,500 milliamperes, and for the periods of time sufficient to coagulate the tonsils. This time varied from 50 seconds to 10 seconds, respectively. The greater the amperage, the shorter the period of application.

The patients in general were comfortable during the operation. No bleeding whatever occurred. The technical skill and dexterity for the operation was no greater than that required to apply a swab of silver nitrate solution to a tonsil, assuming a knowledge of the technic of electrocoagulation.

RESULTS

Without exception, the patients embarked on a stormy experience within a few hours after operation. The pain was uncontrollable save by the administration of liberal doses of morphin. All experienced extreme difficulty in swallowing, much greater than that usually looked for after tonsillectomy. The palate was extremely edematous, and speech was impossible. The intensity of this reaction persisted through the sixth day, and then gradually subsided.

The types of reactions recorded were: swelling of neck, pain on swallowing, difficulty of speech, unusual amount of discharge and sloughing of tissue, marked edema of the pillars, intense edema of the pharynx, uvula, pillars and soft palate, and trismus; and, in a few of the cases, the lower poles of the tonsils were still present.

CONCLUSION

Assuming that electrocoagulation of the tonsils is a simple, bloodless operation, and assuming, moreover, that the ultimate results of this operation might be satisfactory, the very severe reaction, the great pain, the toxemia and the extreme discomfort of the patient almost immediately following operation are sufficient reasons for condemning the method. Furthermore, there is no accurate way of determining the dosage to be applied. Nor is it possible to apply the heat with sufficient accuracy to insure the destruction of only the tonsillar tissue. There is no gage by which the penetration of heat, through the tonsil and up to the capsule only, can be measured. The heat necessary to destroy the tonsil is great enough to penetrate and damage the surrounding tissues. If the aim is merely to obliterate a single crypt, then there is no assurance that a purulent pocket in the fundus of the crypt is not sealed in by a covering of resulting scar tissue. Whatever logical basis electrocoagulation of diseased tonsils may have, or appear to have, from a theoretical standpoint, is far overshadowed by the unfortunate and unsatisfactory results obtained in actual practice.

I realize fully that a small series of cases is ordinarily insufficient for a clinical test; but in this instance

it is, in my opinion, conclusive evidence that the method is entirely inadequate, inaccurate and unsatisfactory, both from the standpoint of the surgeon and from that of the patient, and, therefore, cannot in any manner compete with the accepted present-day methods of tonsillectomy.

30 North Michigan Avenue.

HIGH GRADE CHOKED DISKS IN EPIDEMIC ENCEPHALITIS *

WILLIAM G. SPILLER, M.D.
Professor of Neurology, University of Pennsylvania School of Medicine
PHILADELPHIA

The diagnosis of epidemic encephalitis may in some instances be difficult; the symptoms may resemble those of brain tumor, and this difficulty may be greatly increased when choked disks are present. Some physicians believe that choked disks do not occur in epidemic encephalitis, but I have had at least three cases in which the diagnosis of encephalitis seemed to me definite, and yet choked disks were present. It is singular that all three cases were in boys, two 16 years old and one 17. I have made some investigation of the literature to determine what is published concerning choked disks in epidemic encephalitis.

Holden [1] reported on the eye symptoms noted in 100 consecutive case histories of epidemic encephalitis at Mount Sinai Hospital. It is not stated whether the eyegrounds were examined in every case. There was noted in four patients a blurring of the optic disks, and in one a definite papilledema. True papilledema was also found in one of the twenty cases studied at the Neurological Institute; in this case, the elevation of each disk was 2.5 diopters. Holden refers to another case with papilledema. He concludes: "True papilledema is a very rare symptom of encephalitis, and seems to occur only when there are unusual complications. It is doubtless the result of increased intracranial pressure in most cases, although in some cases it may be due directly to meningitis." He refers to a few cases of optic neuritis in encephalitis reported by Symonds.

In a recent report on 1,250 cases of encephalitis notified in England and Wales during 1919 and 1920, references were given to other cases in the literature, and it was stated [2] that:

> The fundi were examined in 234 cases, and in 80 per cent. of these, it was reported that no changes were seen. In the other 20 per cent., optic neuritis, including papillitis, was reported in twelve cases; in two or three others, the condition would seem to have been well marked; while in the majority of the remaining cases, the several signs which were observed form part of the ophthalmoscopic picture of optic neuritis. This means that in 5.5 per cent. of the cases in which the fundi were examined, optic neuritis was present, while in 19 per cent. of the cases, there were present one or more signs portending the same. In only two was the condition called choked disk. It was acknowledged that these figures were high and that some doubt may be held as regards some of the cases.

Pette,[3] in a recent paper from Nonne's clinic, states that 120 cases of encephalitis were seen in this clinic from 1919 to April, 1922. He says it is shown that changes in the eyegrounds occur occasionally in the acute stage of encephalitis, and Economo and Löhlein have observed atrophy of the optic nerve, but this had not been seen in Nonne's clinic. He does not speak of choked disks.

Smith [4] presented before the Philadelphia Neurological Society, Feb. 28, 1919, a patient from my service at the University Hospital who had epidemic encephalitis with: right eye, disk + 3 diopters, fundus + 1.5 diopters; left eye, + 2 diopters, fundus + 1 diopter. Later, the right disk was + 5.5 diopters, and the left disk, + 5 diopters.

REPORT OF CASES

Two more cases of high grade choked disk in epidemic encephalitis have come under my observation:

CASE 1.—H. R. C., a boy, aged 16 years, previously in perfect health, referred to me by Dr. V. D. Holloway of Knoxville, Tenn., April 25, 1922, in March had had a general convulsion with unconsciousness, but seemed well later in the same day. He had not had another attack. A month later he began to have general headache, and this persisted with remissions and severe exacerbations. About a week after the headache began, pain in the back of the neck and vomiting developed and persisted. About May 15, he began to complain of diplopia, drowsiness and fever. Ptosis of the left eyelid developed, the lower jaw dropped, speech became thick and monotonous, and he could not swallow. He was confined to bed. The temperature rose as high as 101. He vomited frequently. When he came to me, April 25, he had not had diplopia for three days. He was drowsy, but was readily aroused. He had well marked choking of the disks and edema of the retina. Each external rectus muscle was weak, and convergence was poor. The left side of the face was weak, especially in the lower part; the tongue deviated slightly to the left when protruded, and the masseter and temporal muscles were so weak that he could take only soft food. The right soft palate was a little paretic. The tendon reflexes were weak. The limbs were not weak, but Babinski's sign was distinct on the left, and uncertain on the right. There was some albumin in the urine, and from fifteen to twenty dark and light granular casts. The diagnosis seemed to me to be epidemic encephalitis with some nephritis, not an uncommon occurrence, but the kidney elimination test showed good function. The spinal fluid was clear and somewhat yellowish, and contained two lymphocytes to the cubic millimeter; pressure was low, but had been high when the boy was at home. Dr. T. B. Holloway, April 27, found impairment of ocular rotation in all directions, most evident in the right eye; vision, right eye, 2/9??; left eye, 2/6??. Height of each disk, 7 diopters; macular, 2 diopters.

By June 1, the boy was less lethargic, the ocular palsies were less, the facial paresis of the left side had disappeared, the temporal and masseter muscles contracted almost normally, and the tongue was protruded straight. June 6, Dr. Holloway found the right disk, 4 diopters, the left disk, 6 diopters. Beginning June 1, magnesium sulphate (a half ounce at the dose) was given frequently by mouth to lessen the optic nerve swelling, and several lumbar punctures with withdrawal of a small quantity of fluid were performed for the same purpose. June 21, Dr. Holloway found the left disk 4.5 diopters, and the right, 3.5 diopters. The disk margins were distinctly clearer than they had been. The boy was allowed to go home, June 26, in good condition, aside from the swelling of the disks mentioned. A letter from Dr. V. D. Holloway, October 28, stated that Dr. Potter found the patient's eyes in such condition that "time should clear them up entirely."

CASE 2.—O. B., a boy, aged 17 years, referred to me by Dr. P. H. Dale of State College, Pa., was well until December, 1922, at which time he had a "cold," followed soon by

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* Read before the Philadelphia Neurological Society, April 27, 1923.

1. Holden, W. A.: Acute Epidemic Encephalitis, Tr. A. Res. Nerv. & Ment. Dis., 1921.

2. Reports on Public Health and Medical Subjects, No. 11, 1922, p. 84.

3. Pette: Die epidemische Encephalitis in ihren Folgezustanden, Deutsch. Ztschr. f. Nervenh. **76**, Nos. 1-4, 1923.

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diplopia and lethargy, and the latter became more and more pronounced. At first he could be aroused readily; he would answer questions and then fall again immediately into lethargy, but later it was difficult to arouse him. He was confined to bed, though not paralyzed in his limbs. He was in profound lethargy most of the time, and paid no attention to his physical needs. A blood Wassermann test was negative.

When admitted to the hospital, Feb. 7, 1923, he responded to the examination when aroused, but not sufficiently for tests of sensation. The tendon reflexes were diminished, and Babinski's sign was present on each side. Dr. de Schweinitz, February 8, found the light reflex preserved. He had choked disks of between 5 and 6 diopters on each side. Hemorrhages were above the right disk. Diplopia was present, probably from oculomotor nerve involvement. There was noticeable divergence of the eyeballs.

The blood and urine were about normal, although an occasional light granular cast was found in the urine. Lumbar puncture gave a pressure of 28 mm., whereas the normal should be about 10. The fluid contained five lymphocytes to the cubic millimeter. The Wassermann test was negative. Repeated lumbar puncture with the removal of 5 c.c. of fluid was employed to reduce the choking of the disks, and March 1, Dr. B. F. Baer, Jr., found that each disk measured 3 diopters. The lethargy diminished temporarily. March 21, Dr. Baer found: right eye, 2 diopters; left eye, 1 + diopters.

High rectal injections of magnesium sulphate, 3 ounces (90 c.c.) in 6 ounces (180 c.c.) of water with 1 dram (3.75 c.c.) of camphorated tincture of opium, in the technic elaborated by Fay, were begun, February 26, in place of lumbar puncture, and given frequently almost every other day. This procedure accomplished much in reducing the swelling of the disks. It was more satisfactory than repeated lumbar puncture.

The boy became profoundly stuporous and died, April 5. The temperature was normal most of the time, but at one period while he was in the University Hospital, it reached 100 to 101 for a short time. A necropsy was not permitted.

3600 Walnut Street.

THE ANTITHESIS OF UROGENITAL TUBERCULOSIS IN A TABETIC PATIENT

REPORT OF CASE

VICTOR F. MARSHALL, B.S., M.D.
AND
GUY W. CARLSON, B.S., M.D.
APPLETON, WIS.

This case of tuberculosis of the bladder in a patient affected with tabes is reported, because the symptoms of the tabetic bladder are antithetical to those of tuberculous cystitis.

A search through the files of the Surgeon General's Index Catalogue fails to disclose a report of a similar case. Similarly, no such case was noted in other indexes, or the Index Medicus of 1916. It may be that such a condition is frequently present but overlooked by the physician, owing to his hesitancy in doing a complete examination when a diagnosis of tabes is evident.

Ockerblad [1] states that 30 per cent. of tabetic patients have disturbance of micturition at some time, and that 80 per cent. have bladder symptoms. The normal bladder capacity is from 300 to 400 c.c., while the tabetic bladder tolerates from 600 to 1,000 c.c. without discomfort. When a cystitis is present, however, we may have, instead of an enervated bladder, one that is hypersensitive; and, instead of being relaxed, it becomes contracted and of small capacity. The mucosa, then, instead of being pale and trabeculated, is inflamed and velvety in texture between the trabeculae.

SYMPTOMS

The physician often encounters this important and troublesome disturbance. At the onset, vesical disturbance may be the first warning of an organic disease. It is difficult, when such a case presents itself, to know definitely whether or not the vesical symptoms, which appear to be independent of disease of the bladder itself, are the danger signal of a latent tabes. The symptoms experienced by the average patient are usually those of pain about the bladder region, hyperesthesia about the neck of the bladder, the troublesome dribbling, dysuria and the retention. Dillingham [2] states that the capacity of the tuberculous bladder at the beginning of treatment varied from 1 teaspoonful to 3 ounces. The bladder gradually regained normal size as the ulceration and inflammation diminished. The symptoms are usually those of frequent urination, pain and tenesmus. Hematuria may often be a symptom of this condition. Many authors believe that the frequency may be only slight, and no pain or hematuria present unless the bleeding is from the kidney. The degree of severity of the symptoms depends usually on the location of the tubercles, their proximity to the urethral orifice and whether or not a secondary infection is present. This is not the rule, however, and, in the vast majority of cases, frequent urination and pain are present to some degree, depending on where the ulceration is located. The average patient urinates from eight to ten times a day, and three or four times, or more, at night. The advent of cystitis, however, aggravates the symptoms mentioned above.

When the ulcerations are found about the urethral orifice, the frequency of urination is at times almost constant. Those patients who are hospitalized require a urinal at all times. The pain is usually referred above the symphysis pubes, about the neck of the bladder or at the glans penis. Any distention of the bladder with urine causes pain over the pubic arch. On voiding, pain is experienced in the glans penis, and at the end of urination, pain is felt in the region of the neck of the bladder. A frequent feeling that more urine remains in the bladder at the termination of the act is often experienced.

Hematuria is present, according to some authors, in from 15 to 20 per cent. of cases, which they say may be due to kidney involvement, or to a cystitis. The urine under these conditions contained both pus and blood. The general belief is that such cases are due to tuberculosis. One may easily err when one set of symptoms masks those of another.

REPORT OF CASE

History.—H. S., a man, aged 50, a bank cashier, slight, thin chested and of medium build, was admitted to St. Elizabeth's Hospital, Appleton, Wis., March 24, 1923, on account of urinary retention which had been present five days, necessitating catherization. On further questioning, a history of difficulty in urination previous to the retention was present. There was pain and burning on urination, hematuria, a bilateral sciatica, the pains shooting in character, poor vision, diplopia, areas of hyperesthesia about the lower

1. Ockerblad, N. F.: Tabetic or Neurogenous Bladder, J. Kansas M. Soc. **20**: 42 (Feb.) 1920.

2. Dillingham, F. S.: Cases of Tuberculous Kidney and Bladder, California State J. M. **15**: 70 (March) 1917.

extremities, atonic impotence and constipation. The onset of the symptoms mentioned had begun about eight years before, at which time the patient experienced burning on urination, and the urine was distinctly cloudy.

During the past year he had experienced pain at the beginning of the act of micturition, and great difficulty in starting the stream, with, at intervals, complete retention. He never had any dribbling, but had been catheterized frequently before admittance to the hospital for the relief of the retention. The bilateral sciatica had been present for about four years, and the patient complained of sharp, shooting pains in the lower limbs, which were usually sore and tender to the touch, the pain being most noticeable along the course and distribution of the sciatic nerves. It seemed to attack either side similarly. He had never experienced any numbness or tingling in the lower extremities. Poor vision and diplopia developed about four years before admission, at which time the patient began having some difficulty in reading fine print. He stated that, on looking at objects at a distance, he saw double. No nystagmus was present. The hematuria had been present off and on for eight years, and streaks of blood with mucus was oftentimes seen at the end of urination. Atonic impotence had been present for several years. He had had grip two or three times during the last fifteen years, and a supposedly peptic ulcer in 1922, with tarry stools and hematemesis. He was put on ulcer treatment with apparent relief.

The patient's wife died at the age of 40, following the delivery of a premature macerated fetus, complicated by tuberculosis of the kidney. One daughter died at the age of 22 of pulmonary tuberculosis, having been confined in a sanatorium for one year previous to her death. Two daughters and one son were living and well. The patient had gonorrhea at 18 years of age, but no history of chancre was elicited. He stated that he did not recall having had a chronic cough, night sweats or afternoon rise in temperature. He had lost 15 pounds (7 kg.) during the last year. The history was otherwise negative.

Physical Examination.—A bilateral Argyll Robertson pupil and diplopia were present. There was a dulness of the right apex in the lungs, with increased vocal fremitus, probably that of an old healed apical tuberculosis. A small, hard nodule was felt in the head of the right epididymis. The prostate was soft and boggy. A small, palpable nodule, the size of a pea, was felt in the right seminal vesicle. The reflexes were apparently normal, except for a slight, sluggish knee reflex on the left side. There was also a positive Romberg sign. The blood pressure was: systolic, 130; diastolic 80. The physical examination was otherwise negative. A blood Wassermann test was ++; spinal fluid Wassermann, ++++; colloidal gold test, 1233310000, and Ross-Jones and Noguchi tests, positive. The urinalysis previous to cystoscopy of catheterized specimens revealed cloudy urine. The specific gravity was 1.011; albumin, ++; pus cells, ++; blood, ++. There were no casts. The urine centrifugated and stained with Ziehl-Neelson's stain revealed no tubercle bacillus. The patient was catheterized, March 25, at 9:30 a. m., and 40 ounces of urine was obtained; at 6:30 p. m., 27 ounces, and, March 26, at 9 a. m., 38 ounces.

Cystoscopic Examination.—The patient was catheterized with a metal curved catheter, and 32 ounces of urine was withdrawn. After the urethra was anesthetized with alypin through an endoscope, a McCarthy cystoscope was passed into the bladder with difficulty. The prostatic urethra was noticeably inflamed. Inspection of the bladder wall revealed three well-defined tubercles below and to the side of the right ureter, several at the bas-fond, and one in very close proximity to the left ureteral opening. The mucosa was edematous and reddened, with pronounced trabeculous formation. Following the cystoscopic examination, the ureters were catheterized by the use of a Brown-Buerger No. 2 cystoscope, and no difficulty was encountered in passing the catheters to the kidney pelvis. Urine specimens were taken from each kidney for microscopic examination and for inoculation of guinea-pigs. The urine from the left kidney was amber and clear; that from the right kidney was bloody. A kidney functional test with the intravenous injection of 1 c.c. of phenolsulphonephthalein was performed. The time of appearance from the left ureter was three and one-half minutes; that from the right ureter, seven and one-half minutes; first fifteen minutes, left, 1 per cent.; second fifteen minutes, left, 2.5 per cent.; total, 3.5 per cent; first fifteen minutes, right, 10 per cent.; second fifteen minutes, right, 4 per cent.; total, 14 per cent. Pyelograms were then made by injecting the renal pelvis with 12.5 per cent. sodium iodid, the right kidney holding 22 c.c, and the left, 9 c.c. Roentgenographic findings revealed a dilated right pelvis with the absence of cali elevations, and a left normal contour. The case was diagnosed as genito-urinary tuberculosis with tabes dorsalis.

Treatment.—The patient is being treated by the usual combined specific therapy of neo-arsphenamin, mercurial inunctions and massive doses of potassium iodid. Hygienic measures combined with heliotherapy were advised and instituted.

COMMENT

Cabot [3] says:

The bladder symptoms of tabes may simulate prostatic enlargement, and occasionally a useless operation has been done. In tabes the bladder is generally trabeculated, holds a large amount of urine, and is usually markedly free from pain on instrumentation. When a cystitis occurs due to poor bladder drainage, the patient is often unable to void his urine.

In trabeculous cystitis, the patient is usually intolerant of instrumentation, and apt to suffer pain on examination and react badly afterward.

Smith [4] says:

In tabes at first, retention occurs due to spasm of external sphincter, which may be followed by dribbling from an overdistended bladder. In latter tabes, true incontinence occurs from paralysis of the sphincter.

Corbus and O'Conor [5] believe that many patients retain large quantities of residual urine with a fair degree of general health and comfort. The urea nitrogen estimation of blood in a number of tabetic patients with appreciable amount of residual urine has been mainly within normal limits. In no instance did it compare with the nitrogenous content that accompanies a like quantity of urine retained by mechanical obstruction. The pains are not due to any uremia but to the syphilitic process.

In the uncomplicated tabetic bladder, even with the residual urine of from 900 to 1,000 c.c., and blood urea nitrogen normal, the bladder should be undisturbed, and treatment limited to systemic management. Local treatment should be reserved only for imperative complications.

Burns [6] says:

The most effective form of treatment in tabes has consisted in intravenous and intraspinous therapy combined with dilatation of urethra. Of twenty-one cases, incontinence occurred in twelve; entire relief in five; improvement in six, and same condition in one.

Care should be exercised in the examination of patients on account of the presence of concomitant severe lesions. The symptoms which prompt the patient to seek medical aid are often complicated, as in the case just cited.

3. Cabot, F.: Disorders of Bladder, New York, Treat & Co., 1909.
4. Smith, G. G.: Bladder Disturbances Due to Nerve Lesions, J. A. M. A. **69**: 1323 (Oct. 20) 1917.
5. Corbus, B. C., and O'Conor, V. J.: Tabetic Bladder from Standpoint of Urologist, J. A. M. A. **79**: 1750 (Nov. 18) 1922.
6. Burns, J. E.: Bladder Changes Due to Lesions of the Central Nervous System, Surg., Gynec. & Obst. **24**: 659 (June) 1917.

Clinical Notes, Suggestions, and New Instruments

APHONIA FROM PARALYSIS OF THE LEFT VOCAL CORD *

NICHOLAS LUKIN, M.D., NEW YORK

History.—A woman, aged 23, whose family history is unimportant, had had diphtheria, scarlet fever, and complicating nephritis in childhood; also sore throat a few times later on. As she grew up and went through school, her health was considered good. About eight years ago, she came under my observation through her mother, who was not satisfied with her frequently "feeling tired," and her worried appearance. An altered mitral first sound, coupled with her past history, suggested the possibility of a developing mitral stenosis. It did not permit her to finish school, and she rested during a long period of time. Gradually, definite cardiac signs of a mitral stenosis developed. In appearance, however, she improved; she gained some weight, went dancing, and assisted her father in his office. About two years ago, a mild attack of appendicitis laid her up for a week. She had apppendicular pains since on several occasions, but operation was delayed because of the danger to her heart from the anesthetic. Finally, about six months ago, the operation was performed under the most careful anesthesia. Recovery took place in three weeks. A remittent temperature, varying between 100 and 103, ending by lysis, lasted for seven days during the first week. A slight cough, which brought up some blood-stained mucus on several occasions, and intermittent hoarseness also complicated convalescence.

Two weeks after she left the hospital, her hoarseness, which was previously intermittent, became continuous for three months. Her general condition improved, but she spoke only in a whisper. Two eminent throat specialists were consulted, who found the left vocal chord in a cadaveric position while the right moved normally.

Physical Examination.—The patient was a pleasing brunette of the chlorotic type, weighing 105 pounds (48 kg.), and 5 feet 2 inches (158 cm.) in height. The mucous membranes were somewhat pale. The tonsils were of normal appearance; the teeth were in good condition, and the tongue was not coated. The complexion was sallow. Some dilated veins were visible on the chest.

The apex impulse of the heart was seen and felt in the fifth interspace in the nipple line. The pulse was normal in rhythm, but varied in frequency, being between 78 and 96. A diastolic murmur with a presystolic thrill was heard in the region of the apex. The sounds were of good quality; the pulmonary second sound was accentuated.

The liver was not enlarged; the spleen was not felt.

Roentgen-Ray Examination.—Dr. J. J. Landsman reported that the diameter of the left heart was 8 cm.; of the right heart, 4.5 cm.; of the whole heart, 12.5 cm., and of half of the chest, 11 cm. The auricular bulge was unusually enlarged, obliterating the auricular ventricular angle. The structures at the base of the heart were narrow.

Etiology and Prognosis.—For the sake of convenience, the etiology and prognosis must be considered here together, because the latter depends on the first. The throat specialists could not offer any positive opinion as to the etiology of the condition in this case, nor would they suggest a prognosis; but both agreed independently that a dilated left auricle may, by pressure on the left recurrent laryngeal nerve, cause paralysis of the vocal chord. A prognosis was withheld by the specialists, because neither one of them had seen a well authenticated case. Evidence of other mediastinal conditions was absent. Hysteria was excluded by the previous history of the patient and by the fact that the paralysis of the chord was unilateral. Dr. William Osler relates the possibility of a paralysis of the recurrent laryngeal nerve due to the dilatation of the left auricle. He states that he has encountered two instances of it. He also quotes Ostner and Herrick, who described such a condition.

The prognosis in this case was particularly desirable, because the patient was taking singing lessons before her last illness, and her parents, therefore, continually insisted on an answer—whether the voice would ever come back.

Course.—In about two months after the onset of the aphonia, some evidence appeared that the voice was becoming clearer, and by the end of the third month, the aphonia entirely disappeared, to the great satisfaction of all concerned. The only medication the patient received was tincture of digitalis, which she is still taking in small doses.

Examination by the throat specialist revealed that the chord was functioning. The patient submitted also to a reexamination by the roentgenologist who reported a smaller cardiac outline and the auricular bulge diminished in size.

CONCLUSIONS

The report of this case is made:

1. Because relatively sufficient evidence is present to class it clinically as a true case of aphonia resulting from paralysis of the recurrent laryngeal nerve due to the dilatation of the left auricle.

2. As a sequel to anesthesia on a patient with mitral stenosis.

3. As a guide to prognosis in similar conditions.

1437 Prospect Avenue.

SEPTICEMIA FOLLOWING PASSAGE OF CALCULUS THROUGH URETHRA

ABRAHAM NELKEN, M.D., NEW ORLEANS

J. L., aged 39, a native of Finland, admitted to the urological service of Touro Infirmary, Feb. 2, 1923, had been sick for ten weeks with an attack diagnosed as dengue, the symptoms of which were severe pain in the right lumbar region, accompanied by fever. Following cessation of pain, the patient developed urinary frequency, voiding as often as thirty or forty times in twenty-four hours. This continued for two weeks. Then he had difficulty in urinating, and, after two weeks more of suffering, he applied at the Touro outclinic for relief. The morning he first was seen, he had not been able to urinate for twenty-four hours. Catheterization was made without difficulty, and gave immediate relief. For the next two weeks, he visited the clinic daily, with the exception of two days, but until the day of his admission, he did not again have retention. My assistants in the clinic thought that they were dealing with an acute condition of the prostate, and the patient was treated accordingly.

When my attention was called to the case, I advised that the patient be admitted to the ward for observation. The day of admission, he again had retention. He was put to bed and voided without effort for two days. The morning of the third day, he had a severe chill, and the temperature rose to 103. He complained of something having "broken loose" in the bladder, which stopped up the canal. The resident house officer, Dr. Williamson, was called. Examination showed a stone about the size of a large bean, just back of the anterior scrotal attachment. After injecting procain solution, followed by liquid petrolatum, Dr. Williamson was able to dislodge the stone and force it to the meatus. Here it was crushed and removed. The patient was in agony until this was done, but, on removal of the obstruction, he voided urine freely and without effort. Following this, he was given a precautionary injection of mercurochrome-220 soluble.

He continued to have chills and high fever, and two days later, I put in a retention catheter, thinking to protect the traumatized urethra from the passage of septic urine. The following day, his maximum temperature was 100. However, the day after this, with the catheter in place and draining freely, the temperature rose to 102.6, and the second day after, to 104. I then did a cystoscopy and found pus in the slightly turbid urine from the right kidney. Cultures on agar slants showed staphylococci on the right side, the left being sterile after forty-eight hours. The patient looked so ill that, in spite of the presence of pus in the right kidney pelvis, I requested a blood culture. This proved positive, showing a luxurious growth of *Staphylococcus aureus* and colon bacilli

* Read before the Bronx County Medical Society, Feb. 21, 1923.

after twenty-four hours. The patient's condition grew rapidly worse, the temperature ranging between 104 and 105, and he died in coma fourteen days after admission and twelve days after the passage of the stone through the urethra. In spite of every effort, we were unable to secure permission for a postmortem.

The history of this case, as outlined, contains several interesting points that I shall refer to briefly. It is evident that the so-called attack of dengue was really renal colic due to the passage of the stone through the right ureter. Infected urine would account for the fever, and the presence of the stone in the bladder for the frequency. Retention was evidently due to the blocking of the urethra as the stone engaged in its lumen. Invasion of the blood stream by the infecting organisms would appear to be coincident with the passage of the stone through the anterior urethra. It is only fair to point out that the first chill and subsequent rise of temperature preceded the instrumental removal of the stone. The trauma of the urethra by the stone in the presence of a septic urine can explain the invasion of the blood stream in sufficient dosage to induce a fatal septicemia. Here, the culture showed both staphylococci and colon bacilli. I have had a recent case of colon bacillus septicemia complicating pyelitis in which recovery ensued.

305 Baronne Street.

ELEVEN CASES OF BLACKWATER FEVER WITH ELEVEN RECOVERIES

ERNEST BALL, M.D., ESANO, SAN LUIS POTOSI, MEXICO

I treated eleven cases of blackwater fever in 1918 in the republic of Panama. All of these patients were negro or a mixture of negro and Spanish, and ranged in age from 28 to 45 years. The temperatures ranged from 102 to 105 F. Severe headache, pain in the loins, vomiting, jaundice and insomnia were marked features, and estivo-autumnal malarial parasites were found in the blood of all patients.

My worst case was that of a young native physician, aged 32. When I was called in to see him, his temperature was 103, and he had a severe headache, pain in the loins, nausea and vomiting, with slight jaundice. Urine examination revealed a large amount of hemoglobin.

The treatment in all the cases consisted of dosages of quinin, calomel and coconut water. The calomel was given in 5 grain doses as soon as the patient was first visited, and before and after the blood picture was made. Quinin was administered in 15 grain doses, given intramuscularly twice daily, with a large glass of coconut water, every two hours.

Pain in the loins, hemoglobin in the urine, jaundice, vomiting, insomnia and malarial parasites were marked diagnostic features of all cases; the temperature was no index as to the severity of the disease. All the patients were natives of the tropics, and all responded to what appears to be big doses of quinin. Every one of them remained free from malaria for more than one year from the date of recovery, had no further attack of hemoglobinuria after more than three years and gained in weight and are enjoying good health. These cases seem to indicate that, at least in my cases, blackwater fever was caused by a malarial infection.

Exhaustion as Factor in Etiology of Tuberculosis.—Dancing at the end of a day's work and indulged in until late hours may have serious effects upon general health. Even outdoor sports, which are certainly to be encouraged, may defeat their chief end if indulged in immoderately or to the exclusion of proper resting periods. Child labor, either in factory or at home, excessively long working hours, occupations which can not be interrupted for Sunday rest, or which tempt, or drive, to excessive effort or "speeding up," all tend to weaken resistance and predispose to tuberculosis. Night schools, overtime, excessive amusements, overindulgence, and asceticism are all important predisposing causes.—F. C. Smith, *Public Health Rep.* **38**:780 (April 23) 1923.

Special Article

INSULIN: ITS ACTION, ITS THERAPEUTIC VALUE IN DIABETES, AND ITS MANUFACTURE*

BY THE INSULIN COMMITTEE, UNIVERSITY OF TORONTO

TORONTO

Carbohydrates, such as the starches, taken in the food, are converted into simple sugars, such as glucose. The glucose or other sugar is absorbed by the intestine and carried to the liver, where much of it is stored as glycogen. The remainder is carried to the muscles and other tissues, where some of it is oxidized and some stored as glycogen. Prior to these changes, glucose in some way becomes altered in chemical structure so as to change it from an inactive into an active form. In diabetes mellitus it is probable that the sugar absorbed from the intestine is no longer properly changed into the active form so that it cannot be stored in the liver as glycogen, or oxidized in the tissues, but circulates in increased quantities in the blood (hyperglycemia) and is excreted in the urine (glycosuria). It therefore becomes lost to the body as a source of energy. As a result, the store of glycogen is rapidly exhausted, and protein is attacked as a source for glucose. Further, as carbohydrate is necessary for the normal metabolism of fat in the body, incomplete combustion of fat occurs in diabetes mellitus, resulting in diabetic acidosis and coma. Diabetes mellitus must, therefore, be considered as a disease of metabolism in which carbohydrate is not efficiently utilized by the body, thereby causing a derangement of the normal metabolism of proteins and fats as well as carbohydrates. This derangement of metabolism is recognized by voracious appetite, hyperglycemia (increase in the percentage of sugar in the blood), and glycosuria (sugar in the urine).

DISCOVERY OF INSULIN

As a result of the experiments of von Mering and Minkowski, in which they showed that extirpation of the pancreas in dogs was followed by persistent glycosuria and other symptoms of diabetes, the important relation between this gland and diabetes was established. The pancreas consists of two types of tissue—the acinous portion secreting the pancreatic juice (the external secretion) which reaches the intestine through the pancreatic duct, and groups of cells scattered throughout the gland known as the islands of Langerhans. These cells possess a rich supply of blood vessels. As the islands of Langerhans show pathologic changes of varying degree up to complete destruction in the majority of patients dying of diabetes mellitus, Opie and others have considered that the insular portion of the pancreas is the one related to diabetes mellitus. They believed that it probably furnishes an internal secretion necessary to normal carbohydrate metabolism. Several investigators attempted to prepare extracts of pancreas containing this internal secretion but with uncertain results, probably because the active substance was destroyed by the powerful digestive ferments also present in such extracts. It remained for Banting, working in collaboration with Best in the

* Certain portions of this article are appearing in a medical bulletin of the University of Toronto.

Department of Physiology, under the direction of Professor Macleod, to demonstrate that such an internal secretion really exists, and thereby to determine the exact relationship of the pancreas to the disease diabetes mellitus.

It had been shown previously that, if the duct of the pancreas was ligated, degeneration occurred much more rapidly in the acinous portion than in the islands of Langerhans. Banting conceived the idea that, if an extract was prepared from the pancreatic tissue remaining some time after ligation of the ducts, it should contain the supposed internal secretion of the islands of Langerhans because there would not be enough of the digestive ferments to destroy it. In 1921, Banting and Best prepared an extract of the degenerated pancreas and injected it into diabetic dogs. Following the injection, a definite lowering of the blood sugar, and a decrease in the amount of sugar excreted in the urine, were found to occur. They also showed that, if sufficient extract was injected at proper intervals, completely depancreatized dogs could be kept alive and free of symptoms for a long period of time. These experiments support the view that the islands of Langerhans in the pancreas contain a substance which lowers the blood sugar and diminishes or abolishes the excretion of sugar in the urine of diabetic dogs. Later, by extracting the fetal or adult normal pancreas with alcohol, they prepared an extract which contained the antidiabetic substance or hormone, the alcohol evidently preventing the destruction of the active principle by the digestive ferments. This extract was injected subcutaneously into a boy suffering from severe diabetes mellitus. A definite lowering of the blood sugar and of the amount of sugar excreted in the urine resulted. The extract contained other substances which caused considerable local irritation, making repeated injection impossible. With the assistance of J. B. Collip, an extract was prepared in a purer form, suitable for repeated injection in man. The active principle of these extracts has been called insulin, a name previously suggested by Sir E. Sharpey Shafer.

PHYSIOLOGIC ACTION OF INSULIN

At this stage, intensive investigation was conducted in the physiologic laboratory of the university to determine the effects of insulin on normal and diabetic animals. By excellent team work, in which the previously mentioned investigators and E. C. Noble, John Hepburn, J. K. Latchford and others participated, it was possible in a comparatively short time to show, among other things, that:

1. Insulin lowers the blood sugar in normal rabbits; characteristic symptoms supervene when a certain low level is reached, and these symptoms are specifically antidoted by glucose.
2. It may prevent the hyperglycemia due to piqûre, asphyxia, epinephrin and ether.
3. It increases the sugar consumption by the isolated mammalian heart.
4. It causes glycogen to be deposited in the liver of diabetic animals fed with sugar.
5. It raises the respiratory quotient of diabetic animals fed with sugar.
6. It affects the migration of fat in diabetic animals.
7. It causes the acetone bodies to disappear from the urine of diabetic animals.

THE DOSAGE OF INSULIN

A physiologic unit of insulin was originally defined as that amount which lowers the percentage of sugar in the blood of a normal rabbit, weighing 2 kg. and starved for twenty-four hours, to 0.045 per cent. within three hours. Because this amount of insulin is said to be greater than that required in the treatment of certain cases of diabetes in man, it has been found advisable to designate as one clinical unit one third of the foregoing physiologic unit. This clinical unit has been adopted on the labels of all preparations of insulin manufactured for use on man. In carrying out the actual assays on rabbits, considerable variations are found in the extent to which different animals react to equal doses of insulin. It is necessary, therefore, to use many animals for the assay of each sample of insulin, and to take the average of the highest results obtained. Much work is being done, using various other animals than the rabbit (mouse, diabetic dog) in an endeavor to improve the method of assay. In large diabetic clinics, a valuable assay can be obtained by determining how many extra grams of carbohydrate can be metabolized per unit of insulin. For this purpose, "pedigree" patients must be used; i. e., patients that have been under observation for a long time, and in whom the carbohydrate balance is precisely known.

THE THERAPEUTIC ACTION OF INSULIN AND ITS VALUE IN THE TREATMENT OF DIABETES

As a method for the preparation of insulin in suitable form had been found, it became possible to test its value in the treatment of diabetes mellitus. This has been done partly in the medical clinic of the University of Toronto, under the direction of Dr. Duncan Graham, and partly in various clinics in the United States and Canada. Further investigation on the administration of insulin in diabetic dogs, and in severe cases of diabetes mellitus, have shown that the injection of insulin restores to the body the lost ability to oxidize carbohydrates, and that glycogen is again stored in the liver. This it evidently does by converting glucose into the active form; and if insulin is given in sufficient quantity and at proper intervals, the blood sugar is maintained at a normal level and the urine remains free of sugar. Fat is also completely burned. As a result of this, acetone bodies disappear from the urine, and diabetic acidosis and coma are prevented. In brief, the artificial administration of insulin restores to the body a normal metabolism of carbohydrates, fats and proteins.

Although the administration of insulin is capable of relieving the cardinal symptoms and signs of diabetes mellitus, *one must not conclude that insulin can replace the dietetic treatment of the disease.* In diabetes there is a decreased production of insulin, owing to the weakened function of the islands of Langerhans. As all patients with diabetes mellitus are capable of metabolizing a certain amount of carbohydrate, the degree of damage to the islands and their capacity to produce insulin may be ascertained by estimating the tolerance of the patient for carbohydrate. The etiologic factor or factors causing this damage to the pancreas have not been discovered. It is known, however, that diets containing excessive quantities of carbohydrates, or proteins, fats and carbohydrates in improper proportions or quantities, as well as infections, further weaken the function of the already damaged pancreas. The object of treatment should be to give rest to the damaged islands, and conserve their power to produce insulin. Before the introduction of insulin, this was accomplished best by the dietetic treatment as outlined by Allen, Joslin and others. By marked restriction in diet, combined with periods of fasting, Allen demonstrated that, even in severe cases of diabetes, the urine could

be kept free of sugar, and the blood sugar maintained at a normal level for long periods of time. Later, many patients remained aglycosuric without the necessity of fasting. This method of treatment gave a maximum of rest to the damaged pancreas, and allowed it to maintain, or even increase, its power to produce insulin. The lives of patients suffering from severe diabetes were definitely prolonged, whereas in mild cases sufficient tolerance for carbohydrates was regained to allow the patients to take a more liberal diet and yet remain free of symptoms. Unfortunately, the extreme undernutrition resulting from the prolonged use of the restricted diet with fasting caused a marked loss of weight and strength, and made the continuation of the treatment difficult.

The introduction of insulin in the therapy of diabetes makes it possible to begin the treatment of even severe cases with a palatable diet of protein, fat and carbohydrate in adequate quantities to meet the requirement of the body at rest in bed, or with moderate exercise, and at the same time afford adequate rest to the damaged islands of Langerhans. After the glycosuria and ketonuria have disappeared, and the blood sugar level has returned to normal, the diet may be gradually raised until the patient is receiving sufficient food to maintain the body weight slightly below normal, and sufficient calories are being supplied for the body to perform the ordinary duties of life. In some cases the pancreas has so regained its power to produce insulin that the daily dosage need not be increased; in others, in which the damage to the pancreas is more permanent, sufficient additional insulin must be given to keep the urine of the patient free of sugar on the increased diet.

Overdosage of insulin is followed by the development of serious signs and symptoms demanding immediate treatment. The patient complains of a sense of weakness and fatigue, associated with sweating, a feeling of tremulousness, and sometimes pallor and flushing. In the more severe forms there is acute distress, with mental disturbances and even unconsciousness. These reactions are due to a fall in the blood sugar below the normal level of 0.1 per cent. When the blood sugar falls to 0.07 per cent., symptoms develop, and if it falls to 0.035 per cent. the patient becomes unconscious. The symptoms, though alarming both to the patient and to those in attendance, are completely relieved if glucose is given immediately.

INDICATIONS FOR THE USE OF INSULIN

The indiscriminate use of insulin in the treatment of diabetes mellitus is a real source of danger. At the beginning of treatment, all patients with diabetes mellitus, except those suffering from severe acidosis and coma, should be put to bed and given a basal maintenance diet. This diet contains protein sufficient to replace the daily wear and tear of the tissues of the body, approximately 0.3 gm. per pound of body weight. Additional calories in the food are supplied by carbohydrate and fat in proper proportion to prevent the production of acetone bodies, and in adequate amount for the height, weight and sex of the patient. If the urine of the patient becomes free of sugar on this diet, it should be gradually raised until he is receiving an adequate diet for the performance of the ordinary duties of life. Should the patient remain aglycosuric on this diet, insulin treatment is not indicated. Approximately 75 per cent. of diabetics may be controlled by dietetic treatment.

If, at the end of a week's treatment on a basal diet, the urine is not free of sugar, the patient requires insulin. The amount of insulin to be injected daily is dependent on the total amount of glucose found in the urine at the end of the preliminary period of observation. It is given in divided doses, injected subcutaneously, usually before breakfast and supper or, in more severe cases, before each meal. Under combined dietetic and insulin treatment the patient rapidly improves. As the body is supplied with an adequate amount of insulin, carbohydrates are properly metabolized, sugar and acetone bodies disappear from the urine, and the blood sugar returns to a normal level. The patient enjoys his food, and feels stronger, and the mental depression so characteristic of patients with severe diabetes is replaced by cheerfulness. Some patients have been able to resume their former occupations after a months' treatment.[1]

Probably the most brilliant results obtained with insulin have been in the *treatment of diabetic acidosis and coma*. In these cases insulin must be given immediately. In all cases of acidosis and threatened coma there is a favorable reaction to combined dietetic and insulin treatment. In uncomplicated cases of advanced coma the majority of patients—four out of six—have recovered after being given repeated intravenous injections of insulin combined with an adequate amount of glucose to prevent the blood sugar from falling to a dangerous level. In all the other fatal cases of coma in which treatment was given, there was an associated infection sufficiently severe to cause death apart from the diabetic condition.

The susceptibility of the diabetic patient to infection has long been recognized. The effect of a developing infection or a surgical operation on the future course of a case of diabetes was feared by the physician. These, combined with acidosis and coma, constituted danger points in the life of the diabetic patient. If infection develops, or an operation becomes necessary in a case of diabetes adequately controlled by diet, sufficient insulin should be given to keep the urine free of sugar and acetone until the patient recovers. In more severe cases of diabetes already under insulin treatment, the daily dose must be increased. Under combined dietetic and insulin treatment, diabetic patients have recovered from mild infections in a normal period of time; teeth have been extracted, tonsils removed, and amputations performed with safety.

Diabetes mellitus can be successfully treated in the less severe form by the giving of a properly balanced diet; in the more severe, by proper diet and by an adequate daily dosage of insulin. The success of treatment is dependent on the physician for the institution of proper treatment, and on the patient for the continuation of the treatment prescribed. A prescription of a properly balanced diet is of as much importance for a case of diabetes melltius, or even of greater importance, than is one of drugs in the majority of the diseases the physician is called on to treat. In the beginning of treatment, the value to the patient of a month's or six weeks' stay in an institution with proper facilities for the investigation and dietetic control of cases of diabetes mellitus cannot be overestimated. The case can be more fully investigated and the effect of an accurate diet carefully controlled. The patient appreciates more readily the value of proper diet in the treatment of his condition, and becomes familiar with the character, amount and preparation of the various foodstuffs con-

1. Further details of clinical experiences with insulin will be found in the articles by Banting, Campbell and Fletcher, and by Allen, Joslin, Fitz, Geyelin, Wilder, Williams and others in the Journal of Metabolic Research, May, 1923.

stituting his diet. In an institution the tuberculous patient learns how to live; the diabetic, what to eat.

THE MANUFACTURE OF INSULIN

Since the method for the manufacture of insulin from slaughter-house material demands the greatest of care and the strict observance of certain principles of extraction, and since it has been found that toxic symptoms are readily caused by excessive dosage, steps have been taken by the University of Toronto to insure the proper manufacture of insulin, and to provide for some measure of control over its distribution among physicians. The history of the various steps is briefly as follows: After it was discovered that an active nonirritating preparation of insulin could be prepared on a small scale by extraction of the pancreas with weak alcohol and subsequent purification of the extract by fractional precipitation with stronger alcohol, attempts were made to expand the scale of production so as to yield sufficient material for clinical use. Great difficulties were encountered in this work, and for more than two months scarcely any insulin could be obtained. When the difficulties were at last overcome and a reliable large scale procedure had been definitely elaborated in detail, the question of publication of the method came to be considered. It was pointed out, however, that such publication of the method would probably result in some commercial firm modifying the process sufficiently so as to obtain a patent which would give it a monopoly in manufacture, and that the only satisfactory way to prevent this was for the chief originators of the method to apply for such patents in their own names and to assign these, when granted, to some noncommercial organization to administer in such a way as to prevent commercial exploitation of the product. Application for process and product patents were, therefore, filed in Canada and the United States, and the board of governors of the University of Toronto was requested to accept these patents and to assume responsibility for their administration on the basis, first, that the "patent is not to be used for the purpose of restricting the preparation of this or similar extracts elsewhere, or by other persons," and, second, "that the university holds the patent for the sole purpose of preventing any other person from taking out a similar patent, which might restrict the preparation of such extract."

The Board of Governors accepted the trust and created a body known as the Insulin Committee to advise the Board in matters of administration. The personnel of the Insulin Committee is as follows: Col. A. E. Gooderham, convener; Sir Robert Falconer, president of the university; Mr. T. A. Russell; Sir Joseph Flavelle, and an advisory committee consisting of: Dr. H. J. R. Macleod, secretary; Dr. F. G. Banting; Mr. C. H. Best; Dr. R. D. Defries; Dr. J. G. FitzGerald; Dr. Duncan Graham, with Mr. C. H. Riches as legal adviser.

One of the first questions to be considered by the committee related to further expansion in the manufacture of insulin. Since, however, a large scale method had not yet been sufficiently evolved to insure a product of constant potency, it was decided before issuing licenses to manufacturers to develop the details of such a method. At the same time it was realized that adequate facilities for doing this on a practical manufacturing scale could not be provided for unless by collaboration between the committee and some highly organized firm or firms engaged in the manufacture of animal extracts of a similar nature. And since it was also evident that such collaboration could not be carried out satisfactorily with several firms at one and the same time, it was decided after careful consideration to invite the Eli Lilly Company of Indianapolis to send representatives to Toronto to confer on the question. As a result of this conference, an agreement was entered into by which this firm was granted an exclusive license in the United States for the manufacture of insulin for an experimental period set provisionally at one year, under the conditions that:

1. The firm utilize all of its available facilities and personnel for the manufacture of the product and pay all expenses entailed in its large scale manufacture in their plant.
2. The firm submit samples of its product to the University of Toronto for approval before distribution to physicians for use on patients.
3. The approved product be distributed either gratis or at cost price only to such physicians as may be chosen in consultation with the University of Toronto.
4. A certain percentage of the approved product be given gratis to the University of Toronto for use in its experimental laboratories, and for clinical purposes in its associated hospitals.
5. After the expiration of the experimental period, the firm be licensed by the University of Toronto to manufacture the product under the same favorable terms as may be granted to other firms operating in the same territory.

In consideration of the acceptance of these conditions, contained in an agreement between the firm and the University of Toronto signed, May 31, 1922, all known details of the method of manufacture of insulin were given to the Eli Lilly Company, and work was immediately started by it on a large scale.

Having made these arrangements for a gradual expansion in the manufacture and clinical use of insulin in the United States, the Committee now took up the question of its control along similar lines in Great Britain, and it was decided to apply for patents in that country and to recommend to the board of governors that these, when granted, should be assigned to the Medical Research Council of Great Britain on the same general terms as they had been assigned to the University of Toronto; namely, to administer as they deemed best for the purpose of preventing commercial exploitation and uncontrolled manufacture in that country.

During the latter part of 1922, intensive work on the manufacture of insulin, both in Indianapolis and in Toronto, resulted in the gradual increase of the output, so that it became possible to offer insulin for clinical trial to a larger number of physicians, whose reports on its therapeutic value have proved to be of great value in guiding the committee and the manufacturers in questions of suitable dosage, possible risks from overdosage, and the elimination of irritating impurities. This insulin was distributed free of cost by the Eli Lilly Company.

The large expenses incurred by the collaborating firm up to this stage made it necessary for it early in 1923 to put a cost price on its product. With the approval of the committee of the University of Toronto, the number of collaborating physicians was also increased so that there might be in each large center of the United States at least one clinic in a position to undertake treatment of emergency cases of diabetes by the use of insulin. Arrangements were also made through the Connaught Laboratories to undertake a similar expansion of distribution in Canada.

Through the whole-hearted collaboration of the university and the Eli Lilly Company, and the valuable assistance of its scientific adviser, Dr. G. H. A. Clowes, large scale production of insulin has been carried forward at a satisfactory speed, and it is hoped that it will be possible at an early date to terminate the experimental period.

That the policy as outlined above has been justified is exemplified by the fact that several firms have exploited, for the treatment of diabetes, entirely worthless preparations to which they have given names so closely similar to "insulin" as to convey the impression that they contain the antidiabetic hormone. While no other harm may come of this than that useless medicine is taken, it indicates that deaths from overdosage might have occurred in practice, had the method for the manufacture of potent preparations of insulin been made available without any control, and without some supervision over its distribution. Under such conditions the market would by now be flooded with preparations of unknown potency and durability, and serious accidents would inevitably have resulted because of overdosage.

The method of gradual expansion in the clinical application of insulin has eliminated the risks of such accidents. That these would certainly have occurred had insulin been made freely available to the profession will be sufficiently clear from the description of its use which is given in a preceding part of this article. Even at the risk of repetition, it should be pointed out that the symptoms of hypoglycemia due to an overdose of insulin may come on while the patient is asleep, and also that they are sometimes not unlike those of the late stages of many cases of coma. When insulin is used for the treatment of diabetic coma, therefore—and its value here is unquestioned—the physician must see to it that the blood sugar is not lowered to the level at which hypoglycemic symptoms supervene. Experience has shown how these symptoms can be recognized and antidoted so that their occurrence is no longer to be feared as a risk.

It is expected that insulin will be available in general practice within the next few months, and in anticipation of this, it is strongly urged by the Insulin Committee that physicians who may desire to employ this useful antidiabetic remedy in practice should visit some clinic in which it has been in use. This is advisable, not only that they may become familiar with questions of dosage, and the treatment of cases showing symptoms of overdosage, but also that they may learn to recognize the type of case for which it should be prescribed. It should be remarked in this connection that many, if not most, cases of diabetes can be adequately treated by dietetic measures alone, and that the necessity for insulin treatment can be determined only by careful clinical study.

FUTURE POLICY OF THE UNIVERSITY OF TORONTO

Now that a satisfactory process has been worked out for the manufacture of insulin on a large scale, the Insulin Committee considers that, at the expiration of the temporary agreement with the Eli Lilly Company, licenses to manufacture insulin should be granted to other firms who are able and willing to comply with certain conditions imposed by the committee. The Eli Lilly Company agrees to assign to the committee patents covering certain improvements in the manufacture of insulin that have been elaborated by it. All information in the possession of the committee, including the various methods involved in the manufacture of insulin, whether patented or not, will be conveyed by the committee to the licensed manufacturers, it being understood, however, that they on their part agree to put at the disposal of the committee any new processess they may devise, whether patentable or not, and that the committee may then transmit this information to other manufacturers. In other words, the policy is to be that all patents already applied for and all information concerning the manufacture of insulin will be interchanged and made available for such manufacturers as satisfy the Insulin Committee that they are in a position to undertake the manufacture of this substance. By this arrangement it is considered that the purposes for which the University of Toronto holds the patent rights will be fulfilled, and that the medical profession will be assured of the most satisfactory product at the lowest cost.

The Insulin Committee desires to express its appreciation of the whole hearted manner in which the Lilly research laboratories have cooperated in working out the problems of large scale production of insulin. Without this collaboration it is unlikely that a nonirritating product of such satisfactory potency and durability could have been produced in adequate amounts to meet the demand of the medical profession, in this comparatively short time.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

Iletin (Insulin-Lilly).—A brand of insulin (see THE JOURNAL A. M. A., June 2, 1923, p. 1617).

Manufactured by Eli Lilly & Co., Indianapolis, Ind., under license from the Insulin Committee of the University of Toronto. U. S. trademark applied for.

Iletin (Insulin-Lilly) H-10: 5 Cc. ampules containing 10 units in each cubic centimeter.

Iletin (Insulin-Lilly) H-20: 5 Cc. ampules containing 20 units in each cubic centimeter.

Fresh pancreatic glands of animals, from which fat and connective tissue have been removed, are ground, and extracted with 1½ volumes 95 per cent. alcohol, containing 0.11 per cent. absolute sulphuric acid. The mixture is agitated during two hours and then filtered. The residue is again extracted using an equal volume of 70 per cent. alcohol containing 0.11 per cent. absolute sulphuric acid. This is filtered, and the filtrate added to the first filtrate. The combined filtrates are chilled to 0 C. and filtered. The filtrate is concentrated to about one-twenty-fifth its original volume, filtered, and the filtrate added to 5.3 times its volume of 95 per cent. alcohol. This mixture is allowed to stand for several hours, and then filtered, and the filtrate made up to contain 93 per cent. alcohol. After standing several days, the precipitate formed is collected and dissolved in distilled water. The insulin preparation is further purified by precipitation at the isoelectric point, the hydrogen ion concentration being adjusted to approximately *p*H 4.7, after which the solution is allowed to stand in the icebox. The precipitate formed is dissolved in acidified water (*p*H 2.5), filtered, reprecipitated and redissolved if necessary for further purification. The solution is then diluted to approximately the desired potency, filtered through a Berkefeld filter, and submitted to standardization and sterility tests.

On account of the extraordinary variation exhibited by rabbits, standardization is carried out on a very large number of animals, and it is required that not less than 60 per cent. and not more than 70 per cent. of the animals employed exhibit pronounced convulsive symptoms in a period of from two to five hours. The number of rabbit units having been approximately estimated, the solution is diluted to approximately the desired strength and is then submitted to the University of Toronto laboratory for further control tests which employ a somewhat different procedure.

In addition to standardization by means of animals, the experimental lots are tested in human cases in a number of diabetic clinics. So far as possible, each experimental lot is tested in two or more cases in each clinic. The results reported are compared with the animal tests. If the results show considerable variation from the results of the animal tests, the lot is retested, both on animals and in human cases.

For final distribution, a series of lots which have been tested are mixed on the basis of their unity, adding sterile water if necessary to bring the product to the desired strength. The product is then again submitted to unity tests and to tests of sterility.

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SATURDAY, JUNE 23, 1923

REPORT OF COMMISSION ON BOTULISM

Outbreaks of food poisoning led the canning industry of this country in 1919 to propose and finance a thorough investigation of botulism. Original plans for the study covered only the state of California, but subsequent changes included the entire United States. In the report of the commission,[1] recently issued,[2] it is pointed out that ninety-one outbreaks of botulism have occurred in this country and Canada since 1899, and that 345 persons have been affected, 213 of whom died. Plant foods were proved or assigned as the cause in sixty-three of these outbreaks, and animal food products in nineteen. Home canned string beans head the unfortunate list with seventeen outbreaks to their credit; home canned corn is second with nine; commercially pickled and bottled ripe olives are third with seven; then come commercially packed spinach six, home canned asparagus five, commercially canned string beans three, and so on to a total of fifty-one outbreaks accredited to home preserved products, and thirty-one to commercially canned goods.

Although forty-five of these outbreaks occurred in California and thirteen in Washington, botulism is by no means a problem of these states alone. Botulism, either human or animal, has occurred in all states of the union except fourteen. Agricultural products in certain areas are unquestionably more heavily contaminated with *B. botulinus* spores than in others, but the organism seems to exist in nearly all parts of the earth. The California investigation disclosed information that is not ordinarily accessible. It is possible that botulism would be discovered where it has not yet been reported if similar investigations were made in those states.

The prevailing idea that food must be visibly spoiled to be toxic is not entirely supported by this investigation. In some instances, botulism developed from eating canned food which by odor, taste and sight presented no evidence of being spoiled. In a majority of instances, however, the canned products were spoiled so as readily to attract attention, and were said to be "a little sour" or with "odor unpleasant," "taste not right," "no odor but tastes metallic," and "top of jar moldy; lower portion tastes bitter." A mere taste of the infected food in some instances led to fatal botulism, while the same food when cooked was harmless. Botulism from ordinary commercially packed fruits, and such vegetables as tomatoes, was not disclosed by this investigation, although numerous persons probably ingest *B. botulinus* spores on raw vegetables and fruits. There is therefore strong evidence that botulism is always preceded by the consumption of preserved food that contains *B. botulinus* toxin. Otherwise, cases of botulism with no history of eating canned food, none of which were discovered in this investigation, would be numerous.

The recorded case mortality rate of botulism in the United States is 61.7 per cent., and is surprisingly uniform. It varies, however, in different group outbreaks from zero to 100 per cent., and apparently depends on the amount of toxin ingested. In 85 per cent. of 173 fatal cases, symptoms of botulism appeared within forty-eight hours after the food was consumed.

Antitoxin has been administered in eleven outbreaks of botulism. In two instances, Type B antitoxin was injected in what was later shown to be a Type A intoxication. In three other instances, details of administering the antitoxin have not been published. There have been six outbreaks of botulism in which homologous antitoxin was used, and these afford the only reliable data concerning its effectiveness in combating the disease. In these outbreaks, thirty-one persons became ill and twenty-three died, seventeen before antitoxin could be obtained, and six after its administration. One person recovered without any antitoxin, and six after it was used. In none of these cases was the antitoxin available until at least four days after the toxic food had been ingested.

For the prevention of botulism, cleanliness, sound materials and thorough processing of food are indispensable. Spoiled canned food is not safe until all parts have been at the boiling point from thirty to forty-five minutes. The time depends somewhat on the bulk, the size of the container, the altitude and other variable factors. Present regulations of the California state board of health require that ripe olives be processed at 240 F. for at least forty minutes. The temperatures employed in home canning are usually inadequate. Commercial processing was formerly also inadequate. Weinzirl[3] and Cheyney,[4] before outbreaks of botulism were reported, showed that certain commercially canned goods on the market were not sterile,

1. This commission consisted of J. C. Geiger, epidemiologist, U. S. Public Health Service; E. C. Dickson of Stanford University Medical School, and K. F. Meyer of the George Williams Hooper Foundation for Medical Research, University of California, and the California State Board of Health.

2. The Epidemiology of Botulism, Pub. Health Bull. 127, Washington, D. C., September, 1922.

3. Weinzirl, J.: Bacteriology of Canned Foods, J. M. Res. **39**: 349 (Jan.) 1919.

4. Cheyney, E. W.: Study of Micro-Organisms Found in Merchantable Canned Goods, J. M. Res. **40**: 177 (July) 1919.

and that the proportion of cans containing viable spores might be in some products as high as 25 per cent. It is not surprising, therefore, that occasional outbreaks of botulism have occurred. It is evident, however, that the commercial methods have been generally efficient, and that, with the exception of pickled olives and spinach, understerilization for the spores of *B. botulinus* has been rare. This danger, it appears, has been fully recognized, and scientific canning methods are replacing empiric standards. *B. botulinus* spoilage will probably be entirely eliminated in commercially canned goods in the near future.

A SUMMARY OF OUR KNOWLEDGE OF RICKETS

Following the close of the war, information began to reach London that rickets was extremely prevalent in Vienna as a result of deficiency in diet. The Medical Research Council, which had been carrying on special investigations of this disease, appointed a committee to carry on investigations in Vienna jointly with the Accessory Food Products Committee. The committee found at once that war edema had been prevalent, but was no longer so, and that scurvy was common among infants. Moreover, rickets had increased both in incidence and in severity.

As is pointed out in the report just issued,[1] the problem of the cause of rickets is approaching solution, but the interplay of the various factors influencing the satisfactory digestion of calcium phosphate in the growing skeleton is still obscure. As has been indicated in THE JOURNAL, certain investigators were of the opinion that rickets is an infectious disease, whereas others were definitely committed to the view that the disease bears a certain relationship to diet. In his foreword to the present report, Professor Pirquet, in whose clinic Dr. Harriette Chick and her colleagues carried on the work, states that he himself believed that rickets was of an infectious origin, but following their three years of conscientious work, he now has been convinced that the disease is definitely associated with a diet poor in fat soluble vitamins and with the absence of sunlight. The British workers, he says, succeeded with the accuracy of a laboratory experiment in maintaining a large number of artificially fed babies free from the disease, and, further, were invariably successful in healing children with rickets already developed.

This extensive clinical investigation completes the final establishment of views regarding the cause and therapy of rickets which mark an epoch in the control of this disease. In their summary of the results, the workers outline for us a history of the research which completes the record and assigns to each of the workers a correct share in the success. It has been shown that the following factors play a part in the etiology of rickets: (1) an organic factor in diet concerned with the calcification of bone; (2) light, and (3) an adequate amount and correct balance in the diet of the salts of calcium and phosphates. To Mellanby is given the credit of having discovered the importance of the organic factor and having stressed the influence of the balance between this factor and the energy bearing constituents of the diet, particularly the amount and nature of the cereal element. MacCollum, Hess, Unger and others have extended these investigations, and have shown that other factors also have an influence. In 1890, Palm suggested the importance of sunlight following study of the epidemiology of the disease, and in 1919 Huldschinsky showed the curative effect of radiation from the mercury vapor lamp, which was shortly confirmed by Hess and others. The study of the conditions in Vienna indicated well the importance of all these primary factors, and it now remains only to show the extent to which each of them operates.

Of special interest is the mutual congratulation and satisfaction of the Austrian and English scientists in having arrived at such satisfactory conclusions as the result of their cooperation in this work. The English committee is profuse in its appreciation and thanks to the Austrian clinic for the great helpfulness and good will in reaching satisfactory conclusions. Professor Pirquet says: "I can only say that our good will was ideally reciprocated by our guests. What clinic would not be glad to receive such pleasant colleagues with so much energy, such keen scientific interest and so high a standard of scientific accuracy as our recent visitors?"

1. Studies of Rickets in Vienna, 1919-1922. Report to the Accessory Food Factors Committee Appointed Jointly by the Medical Research Council and the Lister Institute, His Majesty's Stationery Office, London, 1923.

EPINEPHRIN AND THE REVIVAL OF THE HEART

The widespread interest with reference to the use of epinephrin as a life-saving drug, because of its apparent power to revivify the human heart under certain untoward conditions, is a natural consequence of some of the publicity that the subject has received. There is something uniquely dramatic in the response of a heart, which has apparently ceased its action, under unexpected circumstances. It presents the possibility of successful restoration of life when death seems already to have been ushered in. Thus, the fear of the end may become replaced by the hope of survival in many instances in which untoward conditions presage the interruption of life through failure of the circulation. The outstanding facts in regard to what has actually been accomplished in an experimental way and has been reported from clinical sources were reviewed in a recent issue of THE JOURNAL.[1] They stress the long known observation that a heart which has ceased to beat may often be revived by the injection of epinephrin; and when this is done with the circulation still intact, a renewal of the flow of blood may ensue, with consequent restitution of tissue functions.

1. The Intracardiac Injection of Epinephrin, editorial, J. A. M. A. 80: 1314 (May 5) 1923.

In almost all of the discussions on this subject, certain aspects of fundamental importance seem to have been overlooked or forgotten. It is one thing to promote restoration of contraction in a quiescent cardiac muscle, and quite another problem to secure restitution of function in the organism as a whole—even when the entire circulation and the respiratory activities are satisfactorily established. The foremost reason for this seeming contradiction lies in the now well established consequences of lack of circulation in different organs and tissues. All of them are sure to suffer severely sooner or later from the anoxemia due to an interrupted circulation. Some structures, however, are damaged far more easily than others in this respect. Above all is the high susceptibility of the nervous tissues to permanent damage as a result of even temporary deprivation of oxygen.

The central nervous system exhibits a difference in the nutritive requirement of its various parts. Different groups of nerve cells show unlike ability to resist complete anemia without losing their ability to revive. Macleod has summarized the existing knowledge by pointing out the varying periods of time beyond which anemia cannot be extended without producing changes in the nerve cells that place them beyond recovery. For the cerebrum, eight minutes may suffice; for the cerebellum, medullary centers and spinal cord, thirteen, thirty and sixty minutes, respectively. The great susceptibility of the cerebral cells to lack of oxygen explains the ease with which consciousness is lost as the result of respiratory failure or asphyxia. It also emphasizes the all too little recognized fact that restoration of the circulation must be exceedingly prompt if permanent damage is to be averted. Every minute literally counts in any effort to resuscitate an asphyxiated nerve cell, in contrast with a muscle, for example. And so it happens, unfortunately, that permanent mental defects sometimes ensue in cases of poisoning with carbon monoxid from coal gas, water gas or automobile exhaust fumes—a condition leading to virtual anoxemia because of the reduced oxygen-carrying power of the blood. Similar mental disturbances are said to have been observed for similar reasons in cases of severe pernicious anemia.

It is sometimes taught that the heart, lungs and kidneys represent the three legs of the tripod of life. Their function may at times be restored after a cessation. But life without the participation of the higher nervous system is at best the expression of a set of mechanical reflexes—a veritable brainless existence. Discriminative features are lost. Consequently, the hope engendered by the stories of revival of the heart by means of epinephrin will be futile unless it carries along a realization of the importance of quick action to save the nervous system as well as the other functions. Otherwise resuscitation, if it does occur, means little more than the temporary survival of a mere automaton rather than an intelligent sentient creature. There need be no utter discouragement or rejection of the favorable response which a potent drug can elicit in critical circumstances, but it will be a futile response unless it is secured speedily. Herein lies the greatest limitation of the much lauded proposals for reviving the moribund; from here, too, arises the scientifically valid warning that precious seconds, not to say minutes, should never be wasted when resuscitation is at stake. This applies most emphatically to every condition in which, for any reason, the master tissues of the body are deprived of a well oxygenated circulation.

YAWS IN THE TROPICS

The gratifying success that has been attained by preventive medicine in almost completely eradicating certain diseases of infectious origin has acted as a spur to renewed efforts in many directions. The mere knowledge of the mode of infection and the life cycle of the infectious agent will not of itself always suffice to promote the desired ends. If it did, the control of malaria would prove to be more easy than it has been found to be. Sellards and Goodpasture [1] have lately made the pertinent comment that, from a psychologic standpoint, the disease it is proposed to eradicate must be instinctively very objectionable to the patient. In addition to this, the effective measures for its control must be of a nature that will appeal to all the persons concerned, or at least be inoffensive to them. From the standpoint of obnoxiousness, the tropical disease yaws meets this requirement, for few maladies produce more loathsome lesions. Furthermore, the efficacy and availability of neo-arsphenamin as a drug applicable to the treatment of yaws brings the possibility of its eradication still more prominently into consideration.

In another respect also, recent studies [2] of yaws bring added encouragement. Recurrence or reinfection after treatment occurs in only about 5 per cent. of the cases. According to Sellards and Goodpasture, sufficient immunity is developed in longstanding cases to afford some degree of protection; and a certain proportion may be put in the category of "chronic self-limited disease." It is a distinct advantage, as these investigators have pointed out, to be working with a type of infection of this character, which can produce a substantial immunity. The lack of immunity results in the production of many chronic cases of disease, and these serve as reservoirs of the infecting agent. For this reason, malaria has been brought under imperfect control only in the same geographic areas in which yellow fever, likewise conveyed by the mosquito, has been eliminated; and it is even tending to die out spontaneously in some of its endemic zones.

These circumstances are highly important in relation to yaws. Sellards and Goodpasture, who have studied

1. Sellards, A. W., and Goodpasture, E. W.: Summary Concerning the Control of Yaws, Philippine J. Sc. **22**: 285 (March) 1923.
2. Sellards, A. W.; Goodpasture, E. W., and De Leon, W.: Investigations Concerning Yaws, Philippine J. Sc. **22**: 219 (March) 1923.

it in various parts of the world, have no hesitation in selecting yaws, without reservation, as the outstanding disease of the tropics through which the immediate confidence and enthusiasm of the people can be secured in public health work. They regard it as reasonable to suppose that systematic effort, sustained over a period of a few years, would accomplish even the eradication of yaws from a given locality. The Philippines offer abundant opportunity to our authorities to test the feasibility of the proposed program. If, as Sellards and Goodpasture further aver, efforts at the control of one spirochetal disease, like yaws, may be properly regarded as a step in the direction of the infinitely more difficult problem, the control of syphilis, likewise of spirochetal origin, their suggestion deserves most serious consideration.

Current Comment

IDENTIFICATION OF BACILLUS BOTULINUS BY SEROLOGIC METHODS

Isolation of *Bacillus botulinus* from suspected food is somewhat difficult; this is evidenced by the fact that only 19 per cent. of the outbreaks of botulism in Germany, and 35 per cent. of those in this country,[1] have been proved bacteriologically and toxicologically. Peculiarities of the food products themselves may be responsible in part for the difficulty, but, in some instances, the immunologic and bacteriologic methods employed have been inadequate. Success has apparently followed a recent serologic attack on this problem. Kelser[2] has shown that the complement fixation test may be used to identify whole bouillon cultures of *B. botulinus,* filtrates of pure and contaminated cultures, and saline suspensions of toxin-free spores, and that in the case of canned food it may be used to demonstrate *B. botulinus* and its toxin in asparagus, spinach, corn, string beans and sausage. The technic employed is similar to the routine method in use in the veterinary department of the army. The sheep hemolytic system, fresh guinea-pig serum for complement, glycerized antisheep amboceptor and a 3 per cent. suspension of sheep erythrocytes are used. Positive and negative control serums are represented by antitoxic serum from hyperimmune horses, and serum from normal horses, respectively. The suspected canned food or culture is titrated as antigen. When the organism examined is in pure culture, a 48 hour broth culture is simply autoclaved, diluted from one to three times with physiologic sodium chlorid solution, and then titrated against a known positive serum. When the broth culture is contaminated, it should be at least five days old. It is then filtered, first through asbestos wool and then a Berkefeld filter, autoclaved, and titrated against a known positive serum. Such filtrates, says Kelser, give "exceedingly good results." In vegetables undergoing examination, the fluid in the container is drawn off, filtered through paper, autoclaved and titrated. If there is too little, it may be expressed with a spatula. The controls for the antigens prepared from canned foods consist of titrations with sound, uninoculated similar food. These were consistently negative. When the antigenic value of the fluid from canned food appeared slight, it could be increased by desiccation or evaporation. A stable antigen was prepared from washed spores of *B. botulinus* that had been killed in the autoclave. This method of identification seems to have been successful under experimental conditions. It will doubtless be of value in outbreaks of botulism.

1. Dubovsky, B. J., and Meyer, K. F.: J. Infect. Dis. **31**: 501 (Dec.) 1922.
2. Kelser, R. A.: Am. J. Pub. Health **13**: 366 (May) 1923.

THE NATUREOPATHIC COMPLEX IN CONNECTICUT

An Act Concerning the Practice of Natureopathy (Chapter 245, Acts of 1923) was recently enacted by the Connecticut legislature. That body recognized the obscurity of the term "natureopathy," and in order that there might be no mistake concerning the matter, for its own guidance, and for the guidance of the people and the courts, defined the cult in the following terms:

> For the purpose of this act, the practice of natureopathy shall be held to mean the practice of the psychological, mechanical and material sciences of healing as follows: The psychological sciences, such as psycho-therapy; the mechanical sciences, such as mechano-therapy, articular manipulation, massage, corrective and orthopedic gymnastics, neuro-therapy, physio-therapy, hydro-therapy, electro-therapy, thermo-therapy, photo-therapy, chromo-therapy, vibro-therapy, concussion, pneumate-therapy and zono-therapy; and the material sciences, such as dietetics, histolo-therapy and external applications; but shall not be held to mean internal medication.

Unfortunately, the definition does not define. Not only is it tautological, having been expanded for the apparent purpose of lending dignity to the cult, but it is in part in words even more obscure than the word defined. What is vibro-therapy as distinguished from mechano-therapy, massage and physio-therapy? What is neuro-therapy? Or zono-therapy? Or pneumate-therapy? Or histolo-therapy? If the Connecticut legislature knows or can find out the meaning of the terms used in its definition of natureopathy, it is to be hoped that it will pass an amendatory act embodying such definitions. Until it does so, one can but speculate as to what was in the legislative mind when the law was passed. As remarkable as the definition embodied in the law are its provisions regarding the qualifications of natureopaths. Any boy or girl—for there is no minimum age limit prescribed for licentiates—having a high school education or its equivalent, and devoting 108 weeks to the study of natureopathy in a school approved by two members of the board of natureopathic examiners, may be admitted to examination. If in those 108 weeks he has mastered anatomy, physiology, histology, psychology, chemistry, hygiene, public health, dietetics, jurisprudence, natureopathic pathology, diagnosis and theory and practice of natureopathic therapeutics, as demonstrated by examination before three natureopathic "physicians," there will be issued to him a certificate that will turn him loose, with the approval of the sovereign state of Connecticut, as a person qualified to treat the sick, to prey upon the lives and health of its people.

MEDICAL EDUCATION FOR NEGRO STUDENTS

A statement issued recently by the Department of the Interior calls attention to the seriously inadequate facilities for the education of negro physicians, as well as of negro dentists, pharmacists and nurses. It is shown that while there is one white physician for every 553 white people, there is only one colored physician for every 3,194 colored people in the United States, or in proportion to the population about one colored physician to every six white physicians. The disparity in dentists is even greater, there being only one colored dentist to every ten white dentists in proportion respectively to the colored and white populations. There are only two medical schools which are moderately well equipped to furnish instruction in medicine, dentistry and pharmacy. These are the Howard University School of Medicine at Washington, and Meharry Medical College at Nashville. The two schools at present are handicapped from the standpoint of teaching staff, laboratory facilities and equipment so that they are enabled to admit to their classes only one fourth or one third of the qualified students who apply. It is evident, therefore, that the shortage of negro physicians is bound to become more serious unless these institutions are given sufficient financial aid to enlarge their staffs and to secure additional equipment and teaching facilities. Although medical schools for white students are open to negro students also, few attend those schools, scarcely a dozen each year being graduated from these institutions. For both Howard University and Meharry Medical College, the great Foundations are at present offering large funds on condition that each institution from its friends and alumni shall raise a corresponding sum. Both these institutions are securing excellent results from such funds as are available, and are well worthy of consideration by those who have money to give for extending the opportunities in medical education to larger numbers of negro students.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Hospital News.—A four-story addition, containing seventy-five rooms, will be erected at the Florence Ward Hospital, San Francisco.——A new forty-bed hospital will be erected in Lodi, on which construction work will be started, about July 15.

"Herbalist" Sentenced.—According to reports Henry Ching, a Chinese herbalist of Los Angeles, was recently sentenced to five years in Fort Leavenworth Penitentiary, for violation of the Harrison Narcotic Law. It was stated by federal authorities that previous to 1919 Ching had been arrested twenty-two times for violating drug laws, but had never been convicted. In that year he pleaded guilty and was fined $250 on each of two indictments.

CONNECTICUT

Yale University News.—The two hundred and twenty-second commencement of Yale University, New Haven, was held June 16-22. The association of Yale men in medicine held its annual meeting, June 18, at the New Haven Medical Association. Dr. Lewis A. Conner, professor of medicine at Cornell University Medical School, New York, and Dean M. C. Winternitz were the principal speakers. The university conferred 716 degrees in course and fifteen honorary degrees. Thirty-one students graduated in medicine. The honorary degree of doctor of science was conferred on the following: Dr. Walter B. Cannon, professor of physiology, Harvard University Medical School, Boston; Dr. Jacques Loeb, head of the department of experimental biology, Rockefeller Institute for Medical Research, New York, and Henry Fairfield Osborn, Sc.D., formerly professor of comparative anatomy at Princeton University, and president of the American Museum of Natural History, New York. The honorary degree of doctor of laws were conferred on Dr. Livingston Farrand, president of Cornell University Medical School, New York.

DISTRICT OF COLUMBIA

Dr. Kober Receives Honorary Degree.—Dr. George M. Kober, dean of Georgetown University School of Medicine, Washington, for the last thirty-two years received the degree of doctor of letters at the one hundred and twenty-fourth annual commencement exercises of the university, June 4. This was also the "golden jubilee" anniversary of Dr. Kober's graduation from the Georgetown Medical School in 1873.

FLORIDA

Addition to Hospital.—A new building will be erected at the Pine Ridge Hospital, West Palm Beach, at a cost of $36,000, for the exclusive use of negro patients.

Decision on Sheppard-Towner Bill Reversed.—The senate, May 25, killed the bill which would have brought the state within the provisions of the Sheppard-Towner Law (THE JOURNAL, June 16, p. 1780). On May 29, however, the senate reversed its decision and passed the measure. The change of attitude on the part of the upper house will make it possible for the state board of health to continue work started several months ago, if the measure is signed by the governor. Following the action of May 25, the senate was flooded with appeals to reconsider its action by various women's clubs of the state.

ILLINOIS

New Medical Practice Act.—The fifty-third general assembly at its closing session, June 19, passed a new medical practice act to replace the 1917 law and the old practice act of 1899 under which the state now operates. The bill now awaits the governor's signature.

Personal.—Prof. Madison Bentley, Ph.D., head of the department of psychology at the University of Illinois, Urbana, is lecturing on psychology during the summer at the University of California.——Dr. Roy W. Johnson has resigned as health officer of Shelbyville. Dr. Adolph G. Mizell has been appointed to succeed him.

Legislative News.—The senate passed a bill, June 15, providing for a home for the rehabilitation of World War veterans at Elgin and for appointment of the staff necessary to insure care for the service men. House bill No. 715 appropriates $60,000 to purchase about 320 acres of land near or adjacent to the Elgin State Hospital and bill No. 474 appropriates $200,000 for the construction of the necessary buildings and plant.——An amendment to senate bill No. 128 provides that any soldier or sailor of the World War, and also the wife of any soldier or sailor of the Civil, Mexican and Spanish-American wars, if 50 years of age, may be admitted to the State Soldiers' Home, Quincy.——The senate passed several bills, June 15, in the interest of child welfare. One of the bills legitimatizes children born of marriages declared void; another provides that the state shall pay the cost of educating crippled children, but not to exceed $300 a pupil yearly; another house bill passed provides that the county court may order the county to pay for the care of neglected or abandoned children who have been taken in by charitable institutions.——A bill passed the house, June 15, by 104 to 0, which provides that any one selling poisonous liquor that causes death shall be guilty of murder.

Chicago

Physicians Fined for Negligence.—Drs. Jacob B. Stogol and Jay Riley Gardner, were each fined $25, by Judge O'Connell, May 18, for failure to report cases of ophthalmia neonatorum, it is reported.

Banquet for Dr. Norman Bridge.—The faculty of Rush Medical College gave a banquet to Dr. Norman Bridge at the Auditorium Hotel, June 13, the fiftieth anniversary of Dr. Bridge's appointment to the faculty of the college.—— Northwestern University conferred the honorary degree of doctor of science on Dr. Bridge at the annual commencement exercises, June 18.

Sanitary District Loses Fight.—The right to divert more water from Lake Michigan through the drainage canal than is authorized by the Secretary of War was forbidden the sanitary district by Judge Carpenter, June 18. At present the district is allowed to take 4,167 cubic feet a second, but contending that that amount is not sufficient to safeguard the health of Chicago, it has been taking 10,000 cubic feet. The district will carry the case to the Supreme Court. This decision comes fifteen years after litigation of the question began. The district contended that under the police powers of the state the state had the authority to take as much water from the lake as was required for the purposes of health and sanitation.

Undertakers and Necropsies.—The Chicago Medical Society recently passed the following resolution:

Whereas a real obstacle in the way of obtaining permission to make autopsies is the more or less open opposition by many undertakers who advise against granting permission for various pretended reasons, a favored one being that the body cannot be embalmed after autopsy; and

Whereas certain other undertakers offer willing and helpful cooperation with physicians in securing autopsies, and announce that they can assure the relatives that the body will look just as life-like and be preserved just as long as though no autopsy had been held;

It is resolved, that the council of the Chicago Medical Society records its hearty approval of this enlightened policy in favor of autopsies, recommends its prompt adoption by undertakers in general, and urges on the members of the Chicago Medical Society to insist on their inherent right, in the interest of the advancement of medical knowledge, to receive cooperation, and not antagonism, from undertakers in seeking permission to make autopsies.

League for the Hard of Hearing.—At the fourth annual conference of the American Federation of Organizations for the Hard of Hearing, Inc., in Chicago, June 18-20, Dr. H. O. Jones of the department of health, Chicago, spoke on "Medical School Inspection"; Dr. Gordon Berry, Worcester, Mass., on "Deliberately Deaf"; Dr. Carl A. Menninger, Topeka, Kan., "Mental Effects of Deafness," and Dr. Harry Mock, Chicago, on "Industrial Rehabilitation Service Through Federal and State Acts." Dr. Harold Hays presided. A lip reading symposium was held Wednesday afternoon. The conference closed with a banquet at the Congress Hotel, June 20. The following constituent bodies were represented: Boston Speech Readers Guild; Chicago League for the Hard of Hearing; Lip-Reading Club of Cleveland; Speech Readers Guild of Cleveland; Dayton League for the Hard of Hearing; Houston Club; Kansas City League for the Hard of Hearing; Los Angeles League for the Hard of Hearing; Minneapolis League for the Hard of Hearing; Newark League for the Hard of Hearing; New York League for the Hard of Hearing; Speech Readers Club of Philadelphia; Pittsburgh League for the Hard of Hearing; Rochester League for the Hard of Hearing; Toledo League for the Hard of Hearing; San Francisco League for the Hard of Hearing, and the Speech Readers Club of Washington.

INDIANA

Society News.—The ninth district convention of the Indiana State Medical Association held a joint meeting with the Boone County Medical Society in Lebanon, May 24. Dr. Lincoln J. Baldwin, Westfield, was elected president; Dr. Stanley M. Cotton, Goldsmith, first vice president, and Dr. Alvin R. Kerr, Attica, secretary-treasurer. Attica was chosen for the 1924 meeting.

IOWA

Personal.—Dr. Julia F. Hill, Des Moines, was elected president, and Dr. Florence D. Johnston, Iowa City, secretary of the Medical Women of Iowa at the twenty-sixth annual convention, Ottumwa, May 10.——Dr. L. R. Wilhite, formerly connected with Dunning State Hospital, Chicago, has been named superintendent of the U. S. Veterans' Hospital No. 57, Knoxville, to succeed Col. Charles A. Barlow, who has been transferred to Fort Sheridan, Wyo.——The State University of Iowa College of Medicine, Iowa City, conferred the honorary degree of doctor of laws on Prof. Ernest Hiram Lindley, Ph.D., chancellor of the University of Kansas School of Medicine. Dr. Lindley delivered the commencement address at the State University of Iowa, June 5.

MAINE

Maine Medical Association.—At the seventy-first annual meeting of the Maine Medical Association, held conjointly with the New Brunswick Medical Association, at Houlton, June 5-7, the following officers were elected for the ensuing year: president, Dr. Charles A. Moulton, Hartland; president-elect, Dr. Fred W. Mann, Houlton, and secretary-treasurer, Dr. Bertram L. Bryant, Bangor. Among the speakers were Drs. Eugene R. Kelley, health commissioner of Massachusetts; David W. Mackenzie, Montreal; Walter W. White, St John, N. B.; William D. Rankin, Woodstock, N. B., and the Hon. William F. Roberts, M. P., M.D., St. John.

MARYLAND

Personal.—Dr. Henry R. Slack, Jr., associate in laryngology at Johns Hopkins University Medical School, Baltimore, who has been exchange professor in Peking Union Medical College, China, for the past year, sailed, June 20, from Shanghai, for Europe, to visit clinics at Vienna and Paris before returning to the United States in October.——Dr. Ralph G. Bleachley, Hagerstown, has been appointed county health officer for Dillon, S. C. Dr. Bleachley recently completed a course in hygiene and public health at Johns Hopkins University, Baltimore.——Raymond Pearl, Ph.D., biometrist of Johns Hopkins School of Hygiene and Public Health, has also been appointed to the chair of biology in Johns Hopkins Medical School, Baltimore.——Dr. J. Howard Brown, Europa, Miss., and Dr. William L. Holman, San Francisco, have been appointed associate professors in bacteriology at Johns Hopkins Medical School, to succeed Dr. Stanhope Bayne-Jones, who resigned to become head of the department of bacteriology in the University of Rochester (N. Y.) Medical School.——At the commencement exercises at the University of Maryland, Baltimore, June 9, the honorary degree of doctor of science was conferred on Dr. Samuel T. Darling of Baltimore.

MINNESOTA

Pathologists Elect.—At the annual meeting of the Minnesota Pathological Society, held at the University of Minnesota, Minneapolis, May 15, the following officers were elected for the ensuing year: president, Dr. Horatio B. Sweetser, Minneapolis; vice president, Dr. Paul D. Berrisford, St. Paul, and secretary-treasurer, Dr. Elexious T. Bell, Minneapolis.

Association of Physicians of the Mayo Clinic.—The annual meeting of the Association of Resident and Ex-Resident Physicians of the Mayo Clinic was held in Rochester, June 4-6. Dr. Thomas M. Joyce, Portland, Ore., was elected president for the ensuing year: Dr. Raymond A. P. Sullivan, New York, vice president; Dr. Harold L. Foss, Danville, Pa., general secretary, and Dr. Robert D. Mussey, Rochester, secretary-treasurer.

MISSOURI

Physicians Charged with Cruelty.—Health Commissioner Starkloff, St. Louis, has recommended to the board of public service that the license of Dr. Marguerite A. Vorbeck and her son, Dr. Joseph C. Vorbeck, to conduct the Marguerite Non-Sectarian Old People's Home be revoked. Complaints have been made to the health commissioner charging that inmates had been cruelly treated.

MONTANA

Medical Association of Montana.—The forty-fifth annual meeting of the state medical association will be held in Butte, July 11-12. Dr. Glenn O. Dayton, Butte, president of the Silver Bow Medical Society, will deliver the address of welcome, and Drs. Walter Williamson, Portland, Ore., and Verne C. Hunt, Rochester, Minn., will also deliver addresses.

NEVADA

New Hospital for Lincoln.—The contract will be let in the near future for the new building to the Lincoln Hospital for which about $300,000 is available.

NEW MEXICO

State Board of Medical Examiners.—Governor Hinkle appointed a new state board of medical examiners, June 5, at Santa Fe. The members are: Drs. William T. Joyner, Roswell; James A. Massie, Santa Fe; Harry T. Watson, Gallup, for four year terms, and Harry A. Miller, Clovis, and Lucien G. Rice, Albuquerque, for two year terms.

Health Officers' Association.—The third annual conference of the New Mexico Health Officers' Association was held in Albuquerque, June 22, at the University of New Mexico. Dr. Oscar C. West spoke on "Control of Milk Supplies in Albuquerque." The afternoon session, which was held jointly with the state public health nurses' association, was given up to the discussion of "Maternal and Child Hygiene and Welfare in New Mexico."

NEW YORK

Origin of the Model Milk Ordinance.—At the annual conference of mayors in 1922, a resolution was adopted inviting the state department of health to join the conference in creating a committee to study the best protective measures for milk sold at retail and to make recommendations based on the study. The committee was appointed, with Dr. Hermann M. Biggs as chairman, and a model milk ordinance formulated, which was recommended for adoption by every city in the state. Copies of this ordinance may be obtained from the state department of health on request.

New York City

Insulin Instruction.—Commencing July 2, a series of biweekly courses on the use of insulin will be offered at the Presbyterian Hospital. Both morning and afternoon courses will be given throughout the summer. The cost of these courses is to be met by the recent gift of Mr. John D. Rockefeller, Jr., a nominal registration fee of only ten dollars being charged to cover the incidental expenses involved. Circulars of information and application forms may be obtained from Dr. George A. Harrop, Presbyterian Hospital, New York.

Dr. Lambert's Injunction Sustained.—Judge Knox, May 29, denied the motion by the government to dismiss the temporary injunction granted to Dr. Samuel W. Lambert, May 8, against Edward G. Yellowley, Acting Prohibition Director; David H. Blair, Commissioner of Internal Revenue, and U. S. Attorney Hayward (in the case questioning the authority of prohibition officials to apply the quantitative limitations of the Volstead act to physicians prescribing liquor) and at the same time granted a stay of the injunction pending an appeal which the government plans to take to the Circuit Court of Appeals.

Fellowships in Psychiatry.—As the result of a gift from the Commonwealth Fund to the National Committee for Mental Hygiene, the Division for the Prevention of Delinquency is able to offer certain fellowships in psychiatry. Those securing fellowships will be placed under training in the clinic now being conducted by this division. The object of the fund is to prepare properly qualified psychiatrists for positions in connection with permanent clinics that are now being organized through the activities of the demonstration clinics conducted by the National Committee for Mental Hygiene. Those interested in these fellowships may address Dr. V. V. Anderson, National Committee for Mental Hygiene, 370 Seventh Avenue, New York City.

Cornell Clinic Raises Its Fee.—A letter from the budget committee of the Cornell Pay Clinic has recently been sent to every physician whose name appears in the medical directory of Greater New York, explaining that the principal object of the experiment set up at the Cornell Clinic was to learn whether or not sound medical service could be rendered at cost to persons unable to pay the current charge for such service in the private office, and to render it at rates which these persons can afford. At a fee of $1 for each visit, plus special charges for roentgen-ray work and laboratory examinations, it has been found that the patient has paid approximately 75 cents on the dollar. The average visits have cost the patient $1.52, and the clinic $2. This does not include 30 cents per visit, which is the approximate cost, to the college of rent, insurance and other matters in the overhead expense. Thus far, of every 100 applicants, twenty have been rejected; of these, only one was excluded because he was able to pay private rates. Within the last few months the clinic has studied to effect every possible economy, and still a deficit remains. To meet this it has been decided to increase the admission fee from $1 to $1.50. This new rate went into effect, June 1. No other fees will be increased.

NORTH CAROLINA

Sanatorium Closed.—The Wilson Sanatorium, Wilson, operated by Drs. Albert F. Williams and Elyal T. Dickenson, was closed, June 1.

Personal.—Dr. Charles S. Norburn, U. S. Naval Reserve, Asheville, has been appointed surgeon to President Harding for his trip to Alaska aboard the transport *Henderson*.——Dr. Carl V. Reynolds, health officer of Asheville has resigned. He will be succeeded by Dr. Daniel E. Sevier.——Dr. Amzi J. Ellington, Goldsboro, health officer of Wayne County, has resigned and gone to New York to reside.——Dr. Blanche N. Epler, Hatteras, has been appointed by the U. S. Public Health Service as contract physician to furnish professional services to Coast Guard Stations Nos. 181-185, inclusive.

OHIO

Reorganization of Health Bureau.—Radical rearrangement of some of the most important bureaus in the state department of health became effective June 15, according to reports from Dr. John E. Monger, state health commissioner. Irvin C. Blummer, formerly chief statistician, has been appointed chief of the division of vital statistics to succeed Dr. Edward J. Schwartz who will become chief of the new bureau of epidemiology in the division of communicable diseases of which Dr. Frank G. Boudreau is chief. The post of chief satistician will be abolished. The bureau of venereal diseases has been detached from the division of hygiene, and Dr. Chandler P. Robbins, Columbus, has been appointed its head. The section for the prevention of blindness is being taken from the division of hygiene and consolidated with the bureau of trachoma, with Dr. Ralph B. Tate, Cincinnati, in charge. Assignment of nurses to the various bureaus will be made from the new division of public health nursing instead of, as heretofore, by nurses directly attached.

PENNSYLVANIA

Hospital Superintendent Resigns.—Dr. Jonathan C. Biddle, surgeon-in-chief and superintendent of the State Hospital, Ashland, has tendered his resignation to Governor Pinchot.

Hospital News.—The Children's Hospital, Pittsburgh, of which a wing was recently destroyed by fire, is still operating with sixty beds and with the dispensaries running as usual.

The Annual Clinic.—The annual clinic of the Dauphin County Medical Society was held at the Harrisburg and Polyclinic hospitals, Harrisburg, June 5. The clinic took the place of the society's June meeting.

Quarantine on Vice Withdrawn.—The health department has withdrawn its quarantine, established a week ago, on fifty disorderly houses in Philadelphia. Two hundred policemen were stationed in front of the houses day and night to enforce the quarantine, but the occupants of most of the buildings fled. Dr. Norman H. Taylor, acting health director, stated that the assistant city solicitor advised that the health department could only quarantine a person and not a house. The physicians assigned to this quarantine duty have been returned to their regular work.

Philadelphia

Medical Society to Prepare Radio Talks.—The board of directors of the Philadelphia County Medical Society has appointed a committee, of which Dr. John F. Roderer is chairman, to prepare suitable articles on medical, hygienic and sanitary topics to be broadcasted by radio through the Strawbridge & Clothier WFI station. As a rule, these talks will be given on Saturday evenings at 8 o'clock during the month of June.

Vaccination of Negroes.—On behalf of the City of Philadelphia, Dr. James Cumming, chief of the bureau of health, has asked the U. S. Public Health Service to vaccinate negroes migrating to Philadelphia from the South. Dr. Cumming attributes at least part of the recent spread of smallpox in Philadelphia to the presence of unvaccinated negroes from southern states. Lack of money was said by the Assistant Surgeon-General, with whom Dr. Cumming conferred, to be the reason why the service could not undertake the vaccination proposed.

The Dr. Spencer Morris Prize.—The board of trustees of the University of Pennsylvania decided that beginning with June 30, 1923, the Dr. Spencer Morris prize, established by a bequest under the will of the late Dr. Spencer Morris, shall be awarded to the student in the Medico Chirurgical College and Hospital Graduate School of Medicine in the University of Pennsylvania, who receives the degree of master of medical science at the annual commencement, and who shows the highest scholarship among those receiving that degree and who will continue his studies in the graduate school of medicine as a candidate for the degree of doctor of medical science. The prize will be paid in ten equal monthly instalments from the time the third year candidacy actually begins.

TENNESSEE

Medical Society to Reorganize.—The Chattanooga Academy of Medicine and Hamilton County Medical Society, which was recently disrupted, has surrendered its charter to the state society and is now being reorganized, preparatory to asking for a new charter.

Physician Sentenced.—According to reports, Dr. John W. Simmons, Nashville, was sentenced, June 9, to ten years in the government penitentiary at Atlanta, Ga., when he was found guilty of violation of the Harrison Narcotic Law. Motion for a new trial was overruled by Federal Judge Gore.

VIRGINIA

Food Handlers to Be Examined.—The health department has announced that all persons engaged in handling foodstuffs at Norfolk must submit to a physical examination every ninety days. This measure becomes effective, July 1. Certificates of good health will be given those who pass the examination; others will be excluded as food handlers.

WEST VIRGINIA

Physicians Get New Trials.—Dr. Edward R. Pendleton, Clarksburg, convicted in the district court at Elkins for violation of the Harrison Narcotic Law and sentenced to a term of five years in the Atlanta Penitentiary, won a reversal, May 25, in the U. S. Court of Appeals. Dr. Thomas L. Nutter, Clarksburg, also convicted on a similar charge, won a reversal in the appeal court at Richmond, May 20, according to reports.

PHILIPPINE ISLANDS

School for Sanitary Inspectors.—The first class at the School of Sanitary Inspectors, organized by the Philippine Health Service, graduated in February. There were twenty-three graduates. Dr. S. V. del Rosario, assistant director of health, is dean of the school.

Philippine Board of Medical Examiners.—The newly organized board of medical examiners consists of the following: Dr. Francisco Oñate, chief surgeon, Philippine Constabulary; Dr. Pedro Apacible; Dr. Florentino Herrera; Dr. Manuel Arguelles, bacteriologist of San Lazaro Hospital, and Dr. Martin Baltazar.

CANADA

Vancouver Medical Association.—At the annual meeting of the Vancouver (B. C.) Medical Association recently, Dr. Frederick J. Buller was elected president; Dr. Thomas H. H. Milburn, vice president; Dr. James A. Sutherland, secretary, and Dr. Stanley Paulin, treasurer.

Hospital News.—Mr. John D. Rockefeller, Jr., has recently donated the sum of $10,000 each to the Toronto General Hospital and the Hospital for Sick Children, for research work with insulin to be conducted by Dr. Frederick G. Banting, also $5,000 to the University of Toronto, to be added to the Banting-Best Fund, recently established by the Ontario Provincial Legislature. This will also be at the disposal of Dr. Banting for further research study of insulin.——The Calydor Sanatorium, Gravenhurst, Ont., has erected an addition to increase its accommodation.——The Muskoka Free Hospital for Consumptives, Sanitarium, Ont., has replaced the buildings recently destroyed by fire.——The Essex County Health Association has replaced the building destroyed by fire at the sanatorium, Kingsville, with a modern building accommodating sixty beds.——A legacy of $100,000 from the will of the late Senator Richardson has made possible increased facilities for the Medical Faculty of Queen's University, Kingston, and the erection of a diagnostic clinic at the General Hospital. Fifty or more beds for the treatment of tuberculosis will be installed.

GENERAL

American Physicians Must Pass Examination in Mexico.—According to an order issued, June 13, by federal health authorities, American physicians will be barred from practice in Lower California until they have filed applications and passed examination at Guadalajara. This order goes into effect immediately.

Fund for Insulin Treatment.—It was announced, June 19, by John D. Rockefeller, Jr., that a gift of $150,000 will be distributed among fifteen hospitals in the United States and Canada for the purpose of promoting the use of insulin in the treatment of diabetes. The hospitals will be selected from all sections of the country.

The Ship's Physician May Have Liquor.—Foreign ship physicians will be the official heads of those vessels in matters of liquor after June 10. A ship's physician may demand of a port health officer a permit for such liquor as he believes necessary as an emergency stock against sickness on board, it was announced by the U. S. Treasury Department, June 4. It is believed this wide latitude allowed foreign ship physicians will avoid conflict with governments under which the foreign vessels operate.

Medical Rules on Liquor Relaxed.—Relaxation of prohibition rules regulating liquor supplies of hospitals and retail druggists was announced by Commissioner Haynes, June 15. State prohibition directors have been given new orders to expedite application of hospitals and druggists to the full limit of their yearly and quarterly allowances, and state directors are reminded that if hospitals and drug stores do not use their entire quota in one quarter they may draw the difference in a later period.

Two Years of Prohibition.—In reporting on two years' accomplishments under the National Prohibition Act, the federal prohibition commissioner made special reference in enumerating the factors operating for good to the treasury decision, first suggested by the American Medical Association, which limits withdrawals of whisky for medicinal use to that which has been bottled in bond. In 1920, whisky withdrawals aggregated 12,389,529 gallons; in 1921, 3,243,845 gallons, and in 1922, 1,819,888 gallons. In discussing narcotics, the commissioner calls attention to the fact that the Harrison Narcotic Act was not intended to be a revenue-creating measure, but that, in 1922, collections turned in to the United States Treasury amounted to $610,311.13 in excess of actual expenditures. Notwithstanding this large cash balance, the appropriations provide for a bureau force of only eighty-two clerks, and a field force of only 182 officers and twenty-nine clerks. These employees cover the entire United States, and, in 1922, had under their supervision 268,258 permittees.

LATIN AMERICA

Health Progress in Salvador.—Health conditions in Salvador, according to the last report of the public health department, are relatively good. Smallpox and yellow fever have been eradicated and the campaign against hookworm disease is being continued. A state laboratory has been opened, the equipment of which was donated by the Rockefeller Foundation. A total of 137,450 vaccinations and revaccinations were made during the year. A total of 51,747 persons were examined, 33,454 of whom were found infected with hookworms, 26,883 with ascaris, 8,913 with trichuris, 44 with strongyloides, 145 with oxyuris, 611 with tapeworms and 10 with amebae, making altogether a total of 43,620 infected persons. A total of 75,290 hookworm and 10,716 ascaris treatments were given. Latrine construction is being pushed in the country districts. The Salvador health department is now directed by Dr. L. V. Velasco.

FOREIGN

New American Hospital in France.—Myron T. Herrick, United States ambassador to France, laid the cornerstone of the new American Hospital at Neuilly, June 18. This institution, which has a capacity for 100 patients, replaces the old building of thirty beds.

Honor for Rome Surgeon.—With much ceremony, a monument was unveiled, May 13, at Letojanni, in Messina, in honor of Prof. Francisco Durante. An imposing bronze bust is supported by a group of four large bronze figures on a granite base, representing Surgery helping a cripple to throw away his crutches, Science and Charity.

Prizes for Essays on Depopulation in France.—The National Alliance for the Increase of the French Population has awarded the first prize of 50,000 francs to M. Paul Haury for the best popularly written pamphlet on the decreasing birth rate and the tragic consequences to the nation. A prize of 6,000 francs was given to Dr. Cattier of Paris. Forty-four other prizes for essays on depopulation, ranging from 1,000 to 8,000 francs, were distributed. Half a million copies of Haury's booklet are to be printed at once.

Institute for Research on Physiology of Altitudes and Tuberculosis.—The *Medizinische Klinik* announces that the institute at Davos is now completed. It is in charge of Pro

fessor Loewy, collaborator of Professor Zuntz of Berlin for many years. The bacteriologic-pathologic department cannot be opened until more funds are available. According to the statutes, five of the nine members of the board must be physicians, and there is a corps of consultants among professors in Swiss universities. The institute is open to research workers of all nations. It is planned to offer free places to a few workers from countries with much depreciated currency. The subjects to be studied can be selected by the workers themselves, subject to the approval of the board. The Swiss government is to aid the institution when pending legislation on tuberculosis is completed. Professor Dorno is in charge of the physical-meteorologic observatory. His "Climatology in the Service of Medicine" is well known. There are places for twenty workers.

Deaths in Other Countries

Dr. **Julio F. Arteaga,** Havana, bacteriologist and medical inspector of the public health service of Cuba and editor of the *Revista de Medicina y Cirugía* of Havana, aged 47. He was a graduate of Bellevue Hospital Medical College of New York and served as intern in three New York hospitals before settling in Havana in 1902. Many of his works have been summarized in THE JOURNAL, and he was the official delegate from Cuba to several international medical congresses.——Professor **Boruttau,** Berlin, the physiologist, aged 54.——Dr. **Marcial V. Quiroga,** professor emeritus of pathology at the University of Buenos Aires, and of epidemiology and of hygiene in the army medical school, president of the Círculo Médico Argentino and member of the lower house. ——Dr. **R. Salillas,** Madrid, founder and president of the school of criminology and a noted writer on medical jurisprudence and penology.——Dr. **Luis Ortega Morejón,** Madrid, senator, president of the local medical chamber and chief of the Beneficencia Municipal.——Dr. **C. Godon,** founder of the dental school at Paris and honorary president of the International Dental Federation.——Dr. **A. Billinghurst,** Buenos Aires, the secretary and one of the organizers of the Asistencia Pública, medical chief of the isolation hospital, and founder and director of the Pirovano Hospital.——Dr. **F. Woithe,** director of the Museum of Hygiene at Dresden, author of works and chemotherapy, disinfection, laboratory technic and biology, aged 45.——Dr. **H. Palm,** Berlin, director of the maternity at Schöneberg.——Dr. **F. de Cérenville,** Clarens, Switzerland.——The Revista del Instituto Médico Sucre of Bolivia mentions the death by accident of Dr. **Adolfo Tufino, Jr.**

Government Services

Field Hospital in Potomac Park

A field hospital was established by the Surgeon General of the Army in Potomac Park, Washington, D. C., for the emergency treatment of visitors and others during the Shrine Convention period. The Unit was part of the first medical regiment stationed at Carlisle Barracks, Pa., and its strength was ten officers and 120 men. The troops marched to Washington. The hospital comprised twelve ward tents, a surgical ward, operating room and roentgen-ray equipment. Its capacity was 150 patients. Twenty ambulances operated from collecting stations along the route of the parade, and several hundred cases but none of a very serious nature were evacuated to this or other hospitals in the city. Majors J. E. Bastion and J. P. Fletcher, M. C.; Capts. T. G. Tousey and J. H. Blackwell, M. C., and other officers from Carlisle, were in charge of the hospital.

Purchase of Hospital Sites

It has been announced by Director Hines of the U. S. Veterans' Bureau, Washington, D. C., that no more hospital sites will be purchased by the bureau at present, the chief reason being a lack of funds. However, further work in this line would not have been undertaken, pending reports on various surveys now under way. The hospital at Dwight, Ill., will be opened immediately for mild mental cases. Two hundred beds have been added to the Maywood (Ill.) Hospital. The two institutions, together with the Great Lakes establishment, will be able to care for all veterans in that region, it is believed. Hospital No. 30, Chicago, which was unsuited because of its proximity to the business district, has been ordered closed.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 28, 1923.

New Campaign Against Cancer

A new campaign against cancer has been inaugurated by a joint letter to the press from leaders of the profession and from philanthropic workers. It is pointed out that, in spite of advances in diagnosis and treatment, cancer is still the most common single cause of death in persons over 30, and is so in an increasing degree. During 1920, in England and Wales, nearly 43,000 persons over 30 died of cancer. In 1921, the last year for which the figures are available, the number was 45,328, more than one in every seven deaths of persons from the age of 30 onward being due to this cause. We are still ignorant of the cause and cure of cancer, but there is no reason to suppose that the problem will not ultimately be solved. The first step is to find the cause, and, for this, every line of research must be diligently explored. Impressed by the need for immediate action, the signatories have joined together to coordinate and support cancer research throughout the British Empire. The new movement will be called the British Empire Cancer Campaign. It will be directed by an executive council, the members of which will act as chairmen of small working committees, each dealing with a separate aspect of the cancer problem. Medicine, surgery, human pathology, chemistry, physics, radiology, animal and plant pathology, hygiene and vital statistics will be represented by committees whose work will be coordinated by the executive council acting as a central clearing house. Individuals and institutions now working on the cancer problem will be helped and encouraged and, when practicable, financially assisted. In this way, investigation can be carried out simultaneously along many lines and the results brought to a common stock of knowledge. The British Red Cross Society has placed its organization and machinery at the disposal of the council of the campaign. A large sum of money is needed, and an appeal is made with confidence to the British public in the United Kingdom, dominions and colonies.

The increase of cancer is shown by the figures of annual mortality from the disease per million living: 1838-1842, 173; 1881, 520; 1891, 692; 1901, 842; 1911, 992; 1921, 1,215. These furnish an interesting contrast with those for tuberculosis of the lungs, which has declined during the same period. Thus, in the period 1838-1842, while the mortality per million for cancer was 173, that for tuberculosis was 3,782. In 1911, the tuberculosis mortality approached closely that of cancer, being 1,062, and in 1921, the position was reversed, the tuberculosis mortality (884) having fallen below that of cancer. Cancer research has been going on for some time in this country. In 1902, the Imperial Cancer Research Fund was founded. Its work has been chiefly experimental—the transplantation of mouse cancer, the production of cancer by the application of tar, and the relation of the growth of cancer to diet. In 1900, laboratories were opened for the investigation of cancer at the Middlesex Hospital. Much work has been done there on roentgen rays and radium. Attempts are now being made to cause experimental animals to develop an immunity toward cancer. Sufficient success has been obtained in the case of transplanted tumors in rats to apply the principle to man. It is too early to speak of results. At the Cancer Hospital, there is a research institute where much experimental work has been done on substances suspected of producing cancer. The fact that arsenic, tar and paraffin can do this has been confirmed.

The Relation of Health to Psychic and Physical Characters in School Children

Prof. Karl Pearson has completed, for the Drapers' Company Research Memoirs, a statistical investigation in which he reaches some interesting conclusions. Quoting Kipling's reference to "the flanneled fool" and "muddled oaf" (in a poem written during the war, denouncing our too great addiction to sport), Pearson says that he felt uneasy at the time about these lines, and endeavored to ascertain what, if any, was the relation between intelligence and success in athletics. The answer given by statistics is that the relation of athletic power to intelligence, if not intense, is significantly marked, and that it is the intelligent rather than the slow or dull children who exhibit athletic power. His other conclusions are not very encouraging to the schoolmaster. He finds that general intelligence and a variety of psychic characters remain unchanged throughout the whole range of school life. It is not possible for the teacher to modify them. It is not he, but the parent, who provides the metal; all the teacher can do is to give an edge and temper to it. General health changes very little during the whole school period. Health and intelligence are correlated, though not markedly. While recognizing this association, it does not seem feasible in the present state of medical knowledge to improve intelligence by modifying health. We are forced to recognize that, on broad lines, health and intelligence are innate characters chiefly controlled by inheritance. There appear to be no grounds for the widespread opinion that health is a governing factor in temperament. It is associated, but only in a minor degree, with certain psychic characters.

The Injustice of Socialistic Legislation

In a letter to the *Times*, Dr. H. B. Brackenbury, chairman of the Insurance Acts Committee of the British Medical Association, points out this anomaly: Two patients require insulin. For one, an insured person, the physician can obtain any necessary supply, free of cost either to the patient or to himself. The other, a professional man of small means, must pay for the drug alone $900 a year—a large part of his income—to keep himself alive, or else he must die. Meanwhile, as an employer, he is contributing to the fund by means of which the other man's supply is obtained, and as a taxpayer, he is paying his share of not less than two ninths of the cost. Turning from this injustice, which in this case is a service to one of the persons concerned, a wasteful one might be added to the doctor's example. Pharmacists often remark that the quantity of dressings ordered by panel physicians is excessive. The panel physician, no doubt, has no desire to waste the money of the taxpayer, for he is one himself. But the direct and much greater stimulus to economy of having to pay for the article is removed, by the Insurance Act, from both him and the patient, with natural consequence. Thus, a panel patient will bring to the pharmacist's shop an order for 4 ounces of cotton wool. The next customer, a woman, whose needs may be the same or greater, will ask for the same quantity, and, on hearing the price, will say, "I will take only 1 ounce." Yet it is she or her husband who helps to pay for the waste which often occurs in the other case. Another example is the Employer's Liability Act, which makes an employer responsible for compensation to an employee, even though the accident is the fault of the latter. If the employer is a small man with some modest savings made for his family, that employee has a prior claim on such savings. It may be said that the employer can and does insure against this liability for a small annual sum. The reply to this is that his liability still exists, for if the insurance company were to fail, he would be mulcted to the full amount.

Vital Statistics

The registrar-general, in his statistical review of England and Wales for 1921, gives some interesting information on marriages. The rate was 16.9 per thousand persons living, a rate higher than any since 1874, excepting the war years. The ages of marriage varied enormously, but twenty-four for men and twenty-one for women were the most usual ages. This does not accord with the popular belief that men and women are tending to marry later in life. However, the marriages included those of sixty men and twelve women who had reached the age of 80 years. Divorces were more numerous than ever before; they numbered 3,522. The largest number formerly recorded in a year was 3,090, for 1920. In the British dominions, the highest marriage rate was 18 per thousand, in Natal; the lowest, 13.4, in Saskatchewan. The birth rate was 22.4 per thousand, the lowest recorded, except for the war years. For every thousand girls born, there were 1,051 boys. Illegitimate births amounted to forty-five in every thousand births. The excess of births over deaths, or natural increase of population, was 390,185, or 10.3 per thousand of population.

PARIS

(From Our Regular Correspondent)

May 25, 1923.

The Formal Opening of the Medicolegal Institute

The medicolegal institute has just been formally opened by the general council of the department of the Seine. The ceremonies were presided over by M. Paul Strauss, minister of public health and social welfare, who was accompanied by the presidents of the general council and the municipal council, the dean of the faculty of medicine, and a large number of distinguished judges and medical men. Addresses were delivered by Dr. Balthazard, professor of medical jurisprudence at the Faculté de médecine of Paris, who explained in detail the rôle of the institute; by Professor Roger, dean of the faculty of medicine, and by others.

This institute was created by the general council of the department of the Seine, not only to replace the morgue proper, but also to become an important center for research work and special study. It was constructed in accordance with the suggestions of Professor Balthazard, and comprises an administrative and a medicolegal service. In the administrative department are the offices and the archives; the room in the morgue in which bodies may be inspected through a glass panel for identification; the necropsy room, and the room reserved for the judicial establishment of identity. The medicolegal service comprises a research laboratory, a museum and library, a large hall for students, and an amphitheater containing 200 seats, to which bodies can be brought on the demonstration table directly from the basement. In the basement is machinery for refrigerating bodies down to a temperature of from 0 to —5 C., and apparatus for the washing and disinfection of clothing. The bodies are stored in separate compartments, of which there are ninety-four. Two small rooms furnished as chapels, each opening into a large reception room, are provided for funeral services.

The Centenary of Pasteur and the American Societies of Paris

The American societies of Paris celebrated the centenary of Pasteur, in the grand amphitheater of the Sorbonne. The ceremonies were presided over by Hon. Myron T. Herrick, United States ambassador. Others present were: M. Paul Strauss, minister of public health; Mr. Selden Palmer Spencer, senator from Missouri; Dr. William Sydney Thayer, professor at the Johns Hopkins University, and Dr. Pasteur Vallery-Radot, physician to the hospitals of Paris. Mr.

Herrick opened the meeting by an address in which he thanked the French government and the rector of the University of Paris for having accorded the American societies permission to take part in the celebration of this centenary, a participation which acknowledges that Pasteur belongs as much to America as to France, that his work knows no limits, and that the most humble, from Paris to Peking, have the right to consider him as a benefactor. Professor Thayer, who is foreign correspondent of our Academy of Medicine, pointed out the reasons America has to honor Pasteur, the great benefactor of humanity and world citizen, whose memory the entire world must revere. Dr. Pasteur Vallery-Radot expressed his thanks to American scientists for their repeated expressions of admiration for his illustrious grandfather, and closed his address with the words uttered by Pasteur on the occasion of his jubilee:

> You afford me the greatest joy that a man can feel who holds the deep-rooted conviction that science and peace will eventually triumph over ignorance and war, and that the peoples of the earth will come to an understanding and will no longer seek to destroy one another but to confer benefits on each other, and that those who shall have the greatest love for suffering humanity will be the heirs of the future.

Celebration of the Centenary of Pasteur in Schools of Paris

The city of Paris wanted the school children to take part in the ceremonies organized in celebration of the centenary of Pasteur, and desired that, on this occasion, they should become familiar with the principal facts in the life of the great scientist and learn the importance of his discoveries. With this purpose in view, more than 3,000 children were assembled to see a motion picture that had been prepared with the collaboration of the heads of the various services of the Pasteur Institute, for the most part in the laboratories in which Pasteur worked, and with the identical instruments that he used. The film consisted of three parts. Part 1 traced the principal events in the life of Pasteur. Part 2 gave a general idea of micro-organisms, the phenomena of fermentation, anthrax and inoculations, and depicted the circumstances of the treatment and cure of young Meister, who was the first to profit by the discovery of antirabic inoculation. Part 3 showed the significance of Pasteur's immortal researches for public health, industry, agriculture and the prosperity of the country in general.

In both the primary and the secondary schools, a period was devoted to the study of Pasteur and his work. May 30, coincident with the arrival at Strasbourg of the president of the republic, a collection will be taken in all the classes of the public schools for the benefit of the scientific laboratories. All pupils in the primary schools who subscribe to this fund will receive a picture of Pasteur.

In Honor of Pasteur and Lister

In the presence of high officials; among others, the British ambassador, British delegates to the centenary of Pasteur, members of the university council, and representatives of the Franco-British Association, there was hung, in the main amphitheater of the Sorbonne, a marble tablet bearing this inscription:

> On this spot, December 27, 1892, the date of the Pasteur Jubilee, the great Frenchman and the great Englishman Lister greeted each other with an embrace.
>
> This 25th day of May, 1923, on which was celebrated the centenary of Pasteur, the University of Paris erected this tablet in commemoration of this fraternal embrace, a symbol of the friendship that exists between the two peoples.

Commemoration of Pasteur's Anthrax Discovery

Ceremonies in honor of Pasteur were held in the department of Seine-et-Marne, under the chairmanship of M. Henry Chéron, minister of agriculture. The celebrants proceeded in a body to Pouilly-le-Fort, the spot where, on a farm that today bears the name Clos-Pasteur, the scientist carried out, in May, 1881, his conclusive experiments on the immunization of animals against the bacillus of anthrax. A tablet commemorative of this event was erected at the farm.

The Pasteur Postage Stamp

M. Paul Laffont, head of the postal and telegraphic systems of France, has issued an order that postage stamps of certain denominations (10, 30 and 50 centimes) and postal cards of 30 centimes shall, from May 25 on, bear the likeness of Pasteur.

VIENNA

(From Our Regular Correspondent)

May 23, 1923.

The Prohibitionist Movement in Austria

During the past year, the anti-alcohol movement has gained in momentum and influence in this country. Statistical data have been brought forward to show that the entire debts of this republic amount to less than is spent by the population in one year on alcoholic drinks, and that its financial straits could be easily overcome by making the population contribute as much to the state loans. In the army, as well as in the schools, total abstainers are already preferred, and the government is urged to bring into force a bill prohibiting the manufacture, import and sale of intoxicating beverages. A few days ago, a meeting of the Austrian Antialcohol Society took place in Vienna. In this a prominent part was played by the young people's organizations which, for the first time in this country, took a leading place in the movement. Although many of the speakers differed as to the methods to be adopted, there was general agreement on securing absolute abstinence. Chief stress was laid on the value of imbuing school children with the idea that alcohol is a poison for the organism, and for this purpose a resolution was drawn up by Professor Smola which was adopted unanimously. This recommended that all school children be instructed both orally and in books on the dangers involved even in moderate drinking of alcohol. All persons engaged in teaching must be total abstainers, and in all teachers' schools, thorough-going instruction on this subject must form part of the curriculum. No alcoholic drinks should be allowed in any school or educational institution, even on exceptional occasions. The regular meetings of parents (compulsory for the past two years) must devote at least one hour each term to a lecture against alcohol. Excursions arranged under the patronage of a school board or by teachers must be absolutely prohibitionist, and lectures, aided by films showing the evil effects of alcohol on the normal individual, should be encouraged. Books for adolescents, both of the school book and the belles lettres type, should be prohibited if they contain paragraphs praising or glorifying the use of alcohol. Drs. Kruz and Trier showed that industries engaged in the manufacture of alcohol could, without much difficulty, change their working methods so as to produce alcohol-free beverages with an increase of profit both to themselves and to the state, for the duties on alcohol amounted to less than 5 per cent. of the total budget income, while the nonalcoholic products from the same factories could bring 10 per cent. Our present legislative measures directed toward diminution of the use of alcohol are of little value. The next step must be to decrease the number of licenses to sell alcoholic drinks, diminish the hours of sale in public houses and "saloons," and prohibit all sales between Saturday afternoon and Monday morning. It will interest American readers to learn that Mr. Hohenthal of New York was present, and reported on the results of prohibition in the United States. He laid stress on the remarkable drop in the incidence of tuberculosis and of violent deaths by 50 per cent. since the law has been strictly enforced.

The Antituberculosis Campaign in Austria

In the course of a discussion on modern methods of fighting tuberculosis (part of the transactions of the fifth meeting of the Austrian Tuberculosis Society), Professor Durig gave some details of present conditions in this country. Since the return of order in the country, things have improved considerably. Chief attention centers around prophylactic measures. Austria, however, is far behind in this respect. Whereas in Germany one "Welfare Center" is active for each 20,000 inhabitants, in our country the ratio is 1:120,000. This is due, not so much to lack of funds, as to lack of recognition by municipalities and health insurance clubs of its fundamental importance. The attitude of general practitioners is also inimical, as they seem to fear a loss of income. Of the fifty-three "centers" in Austria, two belong to "sick-clubs" and seven to municipalities; all others depend on voluntary contributions by charitable societies. The number of beds available for tuberculous patients is absolutely inadequate. We have about 11,000 such beds, and 10 per cent. of these have been lost recently by the closing down of smaller sanatoriums and hospitals owing to the restriction of the state budget. At present it is difficult to find a bed for an advanced case. It has become necessary to call into existence a central board to control all tuberculosis beds, so that the distribution of cases can be regulated. The city of Vienna is much better off. The municipality possesses two special institutions with 2,000 beds for this purpose, and the numerous wealthy sickness clubs have also a number of beds in their own sanatoriums. But patients who do not belong to these clubs or to the municipal officials are badly off unless they can pay. These middle classes, who are in the greatest danger, must be the object of the welfare work; and, in them, prophylactic enterprise must be chiefly centered. An interesting contribution to the pathology of this disease was offered by Dr. Bielzke of Graz, who thus described the course of tuberculosis: The primary affection begins in the lung with an exudative inflammation (caseous pneumonia), which is soon surrounded by a mantle of granulation tissue. This is already a sign of tuberculous allergy. Metastatic foci in the lungs produced by small quantities of virus cause small tubercles, if larger quantities of the virus enter the lungs; or, if the resistance falls quickly, the exudative component—the inflammatory stage—is more prominent. If this resistance of the organism is overcome, primary caseation occurs. Reinfection follows a different course. By the cure of a primary focus, a high degree of specific resistance is acquired by the organism. The formation of tubercles and metastatic affections of glands as well as hematogenous infection are almost entirely excluded. As soon as the resistance is diminished, we again get caseous pneumonia and also miliary tuberculosis, meningitis and glandular caseation (hematogenous metastasis) or a relapse into the condition of primary infection. The so-called phthisis of puberty is an intermediate stage. Professor Tandler explained the prophylactic measures adopted by the city of Vienna to combat the so-called "morbus Viennensis" in children; chief stress is laid on the treatment of adolescents and children. Thus, for instance, a sum of one billion kronen ($15,000) has been devoted to the purpose of sending children suffering from tuberculosis of the joints, bones or glands to the seaside during the summer months. Altogether, it may be stated that the necessity of beginning the fight very early in life is now well understood by the community. Professor Moll, who has had a large experience with the disease among nurslings and infants, showed how by rigid separation of babies from infected mothers—or other members of the family—by rearing them with reliable milk and a generous supply of air and light, more than 50 per cent. of the children, formerly doomed to death before reaching the second birthday, now are saved. The resistance acquired soon after birth seems even to be useful in later life.

Comparative Statistics of the Weight and Size of School Children

In the early spring of 1923, 1,836 children from various institutions and schools, between the ages of 6 and 14 years, were examined by Dr. Nobel with a view to ascertaining their relative weight, size and general appearance, for comparison with the data for previous years. The figures were all taken by the same person, based on the relation between height when sitting and standing, and weight. In the spring of 1920, the average relation, as expressed by Pirquet's method was 92.4 for boys and 92.6 for girls, only 19 per cent. being above 95 pelidisi; in the spring of 1921, the figures were 93.4 for boys and 93.9 for girls, with 32 and 36, respectively, over 95 pelidisi; in 1922, the figures were about the same; but in March, 1923, the averages were 94.3 and 94.7, with 50 per cent. above 95 pelidisi. This means that the general condition of nutrition in 50 per cent. of those examined is about normal this year. The children reared at home are a little taller than those living in institutions, while the latter are a little broader and heavier. The reasons for this peculiar fact have not yet been elucidated. Dr. Nobel thinks that the vitamin A in the food of the latter children is deficient, and suggests a liberal dose of cod liver oil as a means to promote growth. Altogether, it is regarded as satisfactory that a constant improvement is noticeable in the general physical appearance of the nation's youth.

BERLIN

(From Our Regular Correspondent)

May 12, 1923.

Mortality in Germany

The official reports to the effect that the mortality rate in Germany at the present time is surprisingly low were discussed recently by the ophthalmologist and social hygienist Dr. C. Hamburger, at whose suggestion a committee on demography has been appointed by the Berliner medizinische Gesellschaft. The year before the war, 1913, presented a mortality lower than had ever been previously recorded in Germany. This favorable condition was apparently dut to readily discernible causes: a high degree of general prosperity, better housing conditions, more and better health insurance societies, tuberculosis sanatoriums, more and better hospitals, and improvement in hygienic conditions. Then came the war, and the mortality increased. The victims of tuberculosis grew in number until they reached a figure that had not been known for many decades. Since the war, high prices have prevailed in all lines; there has been an increasing scarcity of suitable dwellings, and a downward trend in public hygiene; yet, the mortality has decreased, until of late it has been less than in 1913. And this in spite of the narrow quarters. It is true that the workman has been able to spend more for food—at least, so far—than he could before the war. At that time, a Berlin metal worker had to work a whole week to earn enough to pay the monthly rent, whereas in December, 1922, an hour sufficed. In view of the high prices and the scarcity of many articles of food, it does not follow that actually more food could be consumed. We are inclined to doubt whether such is the case, when we read the figures showing the minimal cost of existence at present. It is to be noted also that certain social groups, including millions of people, such as owners of rented buildings, the professional classes and the students, do not live as well as they did before the war. It is true, their numbers are not so great, when compared with the whole population, that they influence materially the total result. The eight-hour day,

which signifies a shorter work period and more leisure time, must necessarily exert a favorable influence; also the fact that workmen have demanded and secured, for the most part, an annual vacation for rest and recreation. In marked contrast with this, one observes the increasing misery in the hospitals and among the school children, thousands of whom have not a whole shirt to their backs. There seems to be only one explanation for the low mortality. The mortality rate for the whole population is markedly affected by infant and child mortality, which is decreasing because fewer children are being born. As always after a war, so after the World War, the number of marriages increased considerably, the last quarter of 1920 showing the highest number. The birth rate reached the lowest level during the third quarter of 1921. This explanation for the lowering of the mortality rate is not exactly pleasing. Hamburger demands, therefore, increased protection for infants, especially those born out of wedlock. He recommends also limitations on the activities of wetnurses, an increase in the charges for children boarded out, and limitation of the practice of giving unmarried mothers a lump sum settlement. Women should be given increased protection, and every measure that will allow the children more time in the open air should receive support.

Sanatorium for Combating Tuberculosis in Children

The Therapeutikum, an institute connected with the Children's Hospital of the Karl Zeiss Foundation, was recently dedicated in Jena. Its purpose is to combat, on a large scale, tuberculosis in children by employing all the therapeutic means known to science, including quartz lamp radiations, salt-water baths, inhalation treatment and general hygiene. In the Therapeutikum an attempt has been made, with considerable success, to combine the beautiful with the useful. While the demands of hygiene have been strictly observed, the cold, hospital-like appearance of everything has been overcome by bright and gay colors, pictures of groups of merry children, and a fine collection of children's playthings. The decorating and furnishing of the wards was carried out by skilled artists, and the general effect is that of a genuine children's home instead of a hospital. The nucleus of the funds to establish the Therapeutikum, which constitutes a model piece of work, was received from Germans living in foreign countries, and the sums thus contributed were augmented by energetic support from public and private sources at home. Dr. Duken, assistant physician in the Jena Children's Hospital, contributed in no small measure of his time and energy toward the creation of the institution. The management of the Therapeutikum has been placed in the hands of Professor Ibrahim.

The Importance of Tuberculosis Sanatoriums

Prof. F. Reiche of Hamburg has issued a report on the lasting result of the treatment received by sanatorium patients examined by him, in 1911, for an insurance company. On the basis of reexamination of the patients he had examined between 1895 and 1904, he comes to the definite conclusion that, in 1,726 cases of pulmonary tuberculosis (selected cases, adapted to the therapeutic measures in question), the earning capacity of patients was restored or firmly established to a surprising extent by the special course of treatment, which extended over several months and was not infrequently repeated. Of the entire number of pulmonary patients, after the lapse of at least seventeen or an average of twenty-two years, almost half (46.9 per cent.) were strong and easily able to earn their living, while only a little more than a third (35.2 per cent.) had died in this long period, and not more than 8.2 per cent. might be regarded as invalids. These results are for cases 52 per cent. of which belonged in the first and 48 per cent. in the second and third stages, according to the Turban-Gerhardt classification. These highly satisfactory and encouraging results are in sharp contrast to the doleful reports made by Cornet.

Health Record Books for Public School Pupils in Saxony

According to an order issued by the office of public instruction, a health record book must be opened for every pupil in a public or private school, immediately on entering the primary class. All data pertaining to the health of the pupil must be carefully recorded by the class teachers during the whole school period. The introduction of the record book system marks a distinct advance, in that it will be of great value for vocational guidance. However, as it has been observed that physicians, when called on for an opinion with reference to definite vocational aspirations, are not sufficiently informed in regard to industrial conditions and the prospects in a given trade or profession, and that many who profess to give vocational guidance are not able to make practical use of the findings recorded by medical examiners, it is recommended that the advice of physicians with respect to the choice of a trade or profession be confined to calling the attention of aspirants to certain weaknesses or defects which would militate against them in the pursuit of a given calling. The main idea is to dissuade young people from entering on lines of work for which they are not suited.

Marriages

HARRY BALDWIN GANTT, JR., Captain, M. C., U. S. Army, to Mrs. Florelle Edson McKie, both of Washington, D. C., June 2.

ALBERT EUGENE BULSON, JR., Fort Wayne, Ind., to Miss Memory Edith Breeden of Jackson, Mich., May 29.

KEMP PLUMMER BATTLE BONNER, Raleigh, N. C., to Miss Clara Bell Martin of Beaufort, June 4.

ROBERT ALLEN POWERS, Palo Alto, Calif., to Miss Helen Marie Holt of San Francisco, June 7.

FRANK F. STIVERS, Stockton, Kan., to Miss Edythe Lucile Stone of Warrensburg, Mo., June 11.

FRED WHARTON RANKIN, Louisville, Ky., to Miss Edith Mayo of Rochester, Minn., June 12.

WILLIAM A. FOWLER, Oklahoma City, to Miss Virginia Tolbert of Hobart, Okla., April 29.

CHARLES S. DUTTENHOFER, New Holland, Pa., to Miss Mary Hyman of Churchtown, April 25.

JOHN J. RICHSTEIN, San Francisco, to Mrs. Agnes M. P. Pasley of Los Angeles, April 29.

JOSEPH EVANS SANDS, Philadelphia, to Miss Mary C. Fiero of Newton Square, Pa., June 12.

CARROLL COLBY BURPEE, Malden, Mass., to Mrs. Adelaide M. Cannell of Everett, May 4.

HAHNEMANN VOSS HARRELL to Miss Florence M. Lassaline, both of Detroit, June 2.

ISRAEL E. RUDMAN, Bangor, Me., to Miss Anna B. Strom of Norwich, Conn., June 10.

WILLIAM S. KERLIN to Miss Ruth Knighton, both of Shreveport, La., May 31.

CHARLES EDWARD LAWRENCE to Miss Helene Johnson, both of Atlanta, Ga., June 6.

R. EMMET KANE, St. Louis, to Miss Grace Cantwell of Madison, Wis., May 1.

WILLIS H. CORSON, Seattle, to Mrs. Anna Z. Wickland of Everett, Wash., May 3.

GLADYS GIRARDEAU to Mr. Edmund M. Henderson, both of Philadelphia, June 5.

LEE PETIT GAY, St. Louis, to Miss Ruth Bradfield, Abilene, Texas, April 22.

JOHN HENRY WEBER to Miss Helen Bartles, both of Akron, Ohio, May 2.

Deaths

William Cuthbertson ✠ Chicago; University of Toronto Faculty of Medicine, Toronto, and Victoria University Medical Department, Toronto, Ont., Canada, 1883; died, June 18, at the Wesley Memorial Hospital of pancreatitis following a cholecystotomy. Dr. Cuthbertson was born in Winterbourne, Ont., in 1860. He was attending gynecologist to St. Luke's Hospital, and associate in gynecology at Northwestern University Medical School, 1900-1912, and a member of the Physicians' Club of Chicago.

William Prendergast Baldwin, Stephen, Minn.; University of Minnesota Medical School, Minneapolis, 1901; member of the Minnesota State Medical Association and past president of the North Dakota State Medical Association; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 47; died, May 17, at Oconomowoc, Wis., of cerebral hemorrhage.

Eugene Alphonse Frechet ✠ Albuquerque, N. M.; Medical Department of the Tulane University of Louisiana, New Orleans, 1902; member of the State Medical Association of Texas; served in the M. C., U. S. Army, during the World War, with the rank of captain; formerly surgeon to the U. S. Veterans' Bureau; aged 45; died, May 28, following a long illness.

William Earl Beatty ✠ San Diego, Calif.; Detroit (Mich.) College of Medicine and Surgery, 1917; past assistant surgeon lieutenant, U. S. Navy, stationed at the Naval Air Station; served in the M. C., U. S. Navy (air service division), in France, during the World War, and as health officer of Brest; aged 31; died, May 28, of food poisoning.

Ira Joseph Magee ✠ Waterloo, Iowa; Northwestern University Medical School, Chicago, 1913; member of the Illinois State Medical Society; specialized in ophthalmology, otology, laryngology and rhinology; served in the M. C., U. S. Army, in France, during the World War, with the rank of captain; aged 34; died, June 1, of pneumonia.

James William Hadley ✠ Frankfort, Ind.; Illinois Medical College, Chicago, 1902; member of the American Academy of Ophthalmology and Oto-Laryngology and the Indiana Academy of Ophthalmology and Oto-Laryngology; aged 49; died, June 1, of injuries received, when he plunged from a seventh story window.

Henry Carroll Bailiff, Beaumont, Texas; University of Texas Department of Medicine, Galveston, 1917; member of the State Medical Association of Texas; served in the M. C., U. S. Army, during the World War; aged 35; died, May 28, at a local hospital, of septicemia, following a tonsillectomy.

Frank Lane Nichols, Sutherland, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1895; served in the M. C., U. S. Army, during the World War, with the rank of lieutenant; aged 58; died, May 30, at the Aurora (Ill.) Hospital, of cerebral hemorrhage.

Joseph Turner Steele, Hastings, Neb.; Rush Medical College, Chicago, 1883; member of the Nebraska State Medical Association; formerly superintendent of the Nebraska State Hospital, Ingleside; died, May 25, at Rochester, Minn., following an operation.

Harold Hayes Crane ✠ Dexter, Me.; Jefferson Medical College of Philadelphia, 1903; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 45; died, May 26, at the Central Maine Sanatorium, Fairfield.

Albert Stevens Cunningham, Goldfield, Iowa; Rush Medical College, Chicago, 1889; member of the Iowa State Medical Society; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 68; died, May 25.

Eduardo Diaz y Perez, Manila, P. I.; University of St. Thomas Medical Department, Manila, 1882; professor of gynecology at his alma mater; aged 62; died recently, of cerebral hemorrhage, at the San Juan de Dios Hospital.

Frederick D. Grant Harvey, Lawrence, Kan.; Meharry Medical College, Nashville, Tenn., 1892; member of the Kansas Medical Society; aged 57; died, May 25, at the Wheatley-Provident Hospital, Kansas City, Mo., of heart disease.

Harrison Ross Rogers, Rockford, Ill.; Rush Medical College, Chicago, 1909; served in the M. C., U. S. Army, during the World War, with the rank of lieutenant; aged 38; died, May 30, of acute nephritis and pneumonia.

Richard O. Smith ✠ Pittsfield, Ill.; Missouri Medical College, St. Louis, 1884; for several years served as county physician; formerly mayor of Pittsfield; aged 62; died, May 29, of angina pectoris and pneumonia.

Samuel Saunders, Jr., Binghamton, N. Y.; University of Virginia Department of Medicine, Charlottesville, 1915; on the staff of the Binghamton State Hospital, where he died, May 7, of peritonitis, aged 35.

Edwin Albert Porter, Pittsfield, Me.; New York University Medical College, New York, 1881; member of the Maine Medical Association; formerly member of the state legislature; aged 67; died, May 23.

Franklin Pierce Hoover, Jacksonville, Fla.; University of Maryland School of Medicine, Baltimore, 1884; member of Florida Medical Association; aged 61; died, April 22, of angina pectoris.

Horace Clark, Wheatland, N. D.; Medical School of Harvard University, Boston, 1888; member of the North Dakota State Medical Association; aged 60; died, April 5, of acute indigestion.

Conrad Howard Czarra, Chicago; College of Physicians and Surgeons, Chicago, 1899; aged 48; died, June 10, at the Baptist Memorial Hospital, following an appendectomy.

John M. McBride ✠ Albuquerque, N. M.; Dartmouth Medical School, Hanover, N. H., 1901; health officer of Valencia County; aged 55; died, May 19, of cerebral hemorrhage.

Harold Wilbert Street, Owen Sound, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1918; aged 36; died, April 24, in Constantinople, of typhus fever.

Stephen Casper Burton, Pittsfield, Mass.; Albany (N. Y.) Medical College, 1880; member of the Massachusetts Medical Society; aged 73; died, May 17, at Lanesboro.

Fremont W. Frankhauser ✠ Reading, Pa.; Jefferson Medical College of Philadelphia, 1880; Medico-Chirurgical College of Philadelphia, 1888; aged 66; died, May 24.

Anson Levi Raymond, Alexandria, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1909; aged 45; died, May 4, of pulmonary tuberculosis.

Adam Thomson, Galt, Ont., Canada; Trinity Medical College, Toronto, 1887; served as mayor of Galt for two years; aged 56; died, April 19, of pneumonia.

James Wesley Crofford, Denver; Northwestern Medical College, St. Joseph, Mo., 1887; Barnes Medical College, St. Louis, 1898; aged 69; died, March 23.

John Walter Vandolah, Kansas City, Mo.; Keokuk (Iowa) Medical College, 1892; also a pharmacist; aged 53; died suddenly, May 22, at Kahoka.

John William Grady, Lowell, Mass. (licensed, years of practice); aged 61; died, May 24, at St. John's Hospital, of wounds received in a fight.

Harry H. Jones ✠ York, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1896; aged 50; died, May 18, of chronic nephritis.

Thomas C. McKinney, Carbondale, Ill.; Eclectic Medical Institute, Cincinnati, 1867; aged 83; was killed, May 29, when struck by a train.

Charles Dansereau, Woonsocket, R. I.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1869; aged 78; died, May 24.

Jerome Sunday, Harrisburg, Pa.; Cleveland (Ohio) Medical College, 1879; aged 70; died, May 22, of cerebral hemorrhage.

Charles Sohn ✠ Pittsburgh; Bellevue Hospital Medical College, New York, 1890; aged 62; died, May 22, of pneumonia.

George Allen Shannon, Galt, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1891; aged 57; died, April 22.

William L. Rukenbrod, Sidney, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 68; died, May 27, of angina pectoris.

Liberty Crawford McLain, St. Louis; Long Island College Hospital, Brooklyn, 1879; aged 73; died, May 24, of senility.

Thomas Burke Smith ✠ Lowell, Mass.; Medical School of Harvard University, Boston, 1894; aged 52; died, May 21.

Munroe Plumlee, Poteau, Okla. (licensed, Oklahoma, 1908), aged 57; died suddenly, May 22, of angina pectoris.

William Wallace Bruce, Casey, Ill. (licensed, Illinois, 1880); aged 79; died, May 19.

Correspondence

PROTEIN AND PELLAGRA

To the Editor:—Permit me to comment briefly on Hindhede's interesting paper "Protein and Pellagra," which appeared in THE JOURNAL, June 9, 1923, p. 1685.

In this contribution Hindhede undertakes, he tells us, to "discuss the question: Is the cause of pellagra the lack of animal food?" From his discussion it appears, however, that by "animal food" he really means "animal protein." It also appears that he considers Goldberger and his associates as reprehensible advocates of the view that pellagra is caused by lack of animal protein. Just why Goldberger and his associates are charged with this view of the cause of pellagra he does not state, unless it is because "Goldberger and Tanner, from their observations, conclude that 'the dominating rôle of diet in the prevention and causation of pellagra must be referred primarily to the character of the protein (amino-acid) supply, this being the only other dietary factor at present known to be necessary to physiological well-being.'" But why he should interpret this as meaning lack of animal protein we fail to see, all the more as we have repeatedly warned against precisely this interpretation. Thus, in 1915 (*Pub. Health Rep.* **30**:3129 [Oct. 22] 1915), Goldberger, Waring and Willets, in order to prevent misapprehension of their position on the cause of pellagra, pointed out that they were "not to be understood as meaning that pellagra is necessarily due to a lack or deficiency of fresh animal or leguminous protein food," or that the pellagra-causing dietary "fault" was susceptible of correction or prevention by such foods only. Indeed, they expressed the belief that the possibility existed that other foods might be capable of serving the same purpose, and suggested that "barley, rye and millet may have this power in some degree."

In 1916 (THE JOURNAL, February 12, p. 475), in 1918 (THE JOURNAL, September 21, p. 949, footnote) and again in 1920 (*Pub. Health Rep.* **35**:690, footnote) substantially the same warning is repeated. Furthermore, in the paper last cited (p. 703) we have:

> With respect to protein, the evidence which has already been considered seems to us to indicate that from the point of view of quantity alone a deficiency in this factor cannot be considered as essential to the development of pellagra; considering protein as a combination of amino-acids, however, the possibility of a deficiency in some one or more of these, already suggested by Voegtlin in 1914, cannot be excluded.

It therefore seems to us little short of absurd to charge Goldberger and his associates with advocating the view that pellagra is caused by a "lack of animal protein."

Since, so far as we are aware, no student has in recent years seriously advanced this view of the etiology of pellagra, Hindhede's effort to disprove it is, to say the least, utterly superfluous and, thus, his argument loses most, if not all, of its validity and force. Notwithstanding this, however, it seems worth while to consider briefly one or two points in his argument in order, if possible, to prevent further misunderstanding of our view of the cause of pellagra, all the more as some other writers (notably Jobling, THE JOURNAL, Feb. 10, 1923, p. 368) appear similarly confused as to our position.

Although not a matter of vital importance, it seems desirable to point out an error in Hindhede's Table 1 which, as he states, is a rearrangement and condensation of data presented in a table published by Goldberger, Wheeler and Sydenstricker (*Pub. Health Rep.*, March 19, 1920). In this table, as Hindhede presents it, the consumption of the foods of his "Group 1" in pellagrous households with two or more cases is given at the rate of 675 gm.; it should be 583 gm. per person, so that this represents not 2,800 but 2,100 calories, and therefore 64 per cent. and not (as Hindhede states) 90 per cent. "of the nourishment" of the members of such households. We have not thought it worth while to attempt to verify the data presented in the other tables.

In discussing our published studies of the diet of pellagrous households, Hindhede correctly points out that they were made in April and May, "and consequently" he remarks, "at a time when the food is most deficient. Why have investigations not been made," he asks, "in July and August, when the food evidently is satisfactory? Investigations at this time," he adds, "would probably have readily unearthed the cause. Is it probable," he continues, "that people in the hot summer use more meat and milk? Hardly. But it is likely that they use more vegetables."

We must confess that earlier in our studies we were disposed to regard the problem in very much this simple light ourselves, so that in the continuation of the study to which Hindhede refers we actually did make just such an investigation, the results of which are in preparation for publication. We may here anticipate this report so far as to say that we actually did find, as we had anticipated and as Hindhede suggests as likely, that much more vegetables were eaten in July and August than in April and May but, quite unlike what presumably obtains in Denmark, we also found that in South Carolina, cows give (or did give) more milk in July and August and, to complicate matters, the people drank it. Thus, as can readily be seen through a complication arising from a peculiarity or perversity of South Carolina cows, this investigation did not enable us to unearth the cause.

Proceeding to another phase of Hindhede's discussion, we note that he does "not deny the possibility that pellagra is due to the absence of protein" (we assume that by "absence" he means deficiency), but he is "most inclined to think that the question of pellagra is not a question of protein but of vitamin." In support of this view, he presents data tending to show that excellent health may be maintained on diets lacking in animal protein but, by reason of the inclusion of "whole bread" and "plenty of fruits, vegetables and potatoes," not lacking in vitamins. This, it seems, Hindhede regards as proof of his contention in favor of vitamin.

In view of our position with respect to animal protein, it must be obvious that, if the problem were the simple alternative between animal protein and vitamin, as Hindhede seems to consider it, we should logically have to agree with him as to vitamin. Unfortunately, in our view the matter is not so simple, for to us it is a question not of a lack of animal protein but of a faulty protein (amino-acid) supply as against (perhaps, indeed, in combination with) some as yet unknown factor which may or may not be a vitamin. (It is believed that the evidence already adduced by us excludes the known vitamins as the essential factors.) Accordingly, it follows that before either possibility can be accepted the other must be excluded. Hindhede seems to believe that the evidence he adduces showing that good health may be maintained on a low protein, with little or none from animal sources, proves that the protein in diets associated with pellagra is biologically complete and adequate, and that this factor is thus excluded.

He seems to believe also that the inclusion of "whole bread" and "plenty of fruits, vegetables and potatoes" in a diet makes the diet so enriched satisfactory solely by reason of the vitamins thus supplied.

We regret to be unable to share either of these views. The results of the studies of the last few years, notably those of McCollum and of Osborne and Mendel on the dietary properties of our natural foodstuffs, even though very lightly

esteemed by Hindhede, prevent it. In the light of these studies, it seems to us possible that the protein of "whole bread" and of "fruits, vegetables and potatoes," even though small in amount, may be adequate in itself or, more likely, may serve as an efficient supplement.

In closing we desire to state that we feel no prejudice either against vitamin or in favor of faulty protein in relation to pellagra. It is simply a question of the weight of evidence against or for. In our judgment, the weight of available evidence (*Pub. Health Rep.* **35**:648 [March 19] 1920; **37**:462 [March 3] 1922; THE JOURNAL, Dec. 23, 1922, p. 2132) supports the view that a faulty protein (amino-acid) supply is the primary etiologic factor in pellagra, although at the same time we fully recognize that some as yet unrecognized dietary factor, possibly a vitamin, may be concerned either alone or in combination with the amino-acid factor. More evidence is needed to settle this point conclusively.

JOSEPH GOLDBERGER, M.D., Washington, D. C.
Surgeon in Charge, Hygienic
Laboratory, U. S. P. H. S.

"THE INTRACUTANEOUS GUINEA-PIG TEST FOR HUMAN SUSCEPTIBILITY TO DIPHTHERIA"

To the Editor:—The communication in THE JOURNAL, May 12, by Dr. Kellogg, answering my criticism that he had devised a "new" method for the determination of diphtheria immunity of human beings by testing out their serums in guinea-pigs makes one believe that Dr. Kellogg is wrong in assuming undue credit.

The impression that Dr. Kellogg's letter conveys to an observer familiar with serum tests for antitoxin is well characterized by a statement in his own communication, i. e., that it consists of "quibbles as to differences or resemblances in technic."

I had occasion to refer to this matter before the American Society of Immunologists at the the annual session in Boston, March 29, and was much interested to note that these very serologists, whom Dr. Kellogg calls in as witnesses, could not see the justice of his claims to originality of a laboratory test that had been carried out by different investigators for more than ten years and fully described by me in a publication seven years ago (*J. Infect. Dis.* **19**:557 [Oct.] 1916).

Dr. Kellogg claims "that his modification was the first application of a skin test in guinea-pigs for the detection of natural immunity in the human subject." I modified Römer's test with this very purpose in view, i. e., to separate the naturally immune from the nonimmune, so as to be able to immunize the latter with toxin-antitoxin. Then, by a reapplication of the serum test I could determine not only the development of an active antitoxic immunity, but also in an accurate way find out the exact amount of antitoxin that had been produced.

The second statement, "that Zingher perpetrated the same fault as Römer in his modification" is not correct. Through these serum tests Dr. Park and I have been able to make studies in natural and active immunity against diphtheria, which have been fully corroborated by many observers, both here and abroad. Moreover, in using the same principle in the dilution of the test toxin (Dr. Kellogg uses $\frac{1}{30}$ L plus toxin in each cubic centimeter, and I had originally recommended for purposes of more accurate determination $\frac{1}{100}$ L plus toxin in each cubic centimeter), Dr. Kellogg continues to perpetrate the same fault.

The third statement, that my test has not been used by anybody anywhere, as far as Dr. Kellogg is aware, whereas his so-called "new" test is being used in three other laboratories, is also not correct. In several state and municipal laboratories, as well as in several research laboratories, my modification has been used with complete success for a number of years.

Fourth, Dr. Kellogg's statements as to the unreliability of the Schick test are sufficiently contradicted by the results obtained by the many thousands of physicians and investigators who have adopted and used the test all over the civilized world. In their hands it has given significant and far-reaching results in spreading the progress of diphtheria control, and through their efforts the hope is raised that we shall soon see the end of this disease wherever the Schick test and the immunization with toxin-antitoxin are carefully practiced.

Finally, Dr. Kellogg's claim for the intradermal guinea-pig test, that it has "simplicity, practicality, accuracy and originality of merit" is correct only with modifications. The intradermal guinea-pig test (as I described it in 1916, or as Dr. Kellogg rediscovered it in 1923), is "simple" enough in the hands of a carefully trained laboratory worker, who must have at his disposal not only a standardized toxin, but also guinea-pigs that are expensive and not always easily obtainable. It is "practical" only to the extent that he assumes that physicians would rather draw blood from a person to be tested for diphtheria immunity than learn how to do a careful Schick test and thus depend on their own results. This could only be true of physicians who rarely would want to do a Schick test. It is "accurate" in proportion as great care is taken in the laboratory in making these tests on guinea-pigs. But it falls down almost completely on "originality."

ABRAHAM ZINGHER, M.D., New York.
Assistant Director, Bureau of
Laboratories, New York City
Department of Health.

CONCERNING THE DIETETIC AND HYGIENIC TREATMENT OF CANCER

To the Editor:—In a recent circular, evidently sent to a large number of physicians, Dr. L. Duncan Bulkley has invited those interested in the treatment of cancer by purely medicinal and dietetic measures to join him at the San Francisco session of the American Medical Association, in forming a society to promote these methods. The injury that will be done to the public by the spread of such doctrines needs no emphasis; and this attempt to give such methods an apparently scientific "regularization" and basis should meet with the same decisive opposition as would other forms of cancer quackery.

In order that there may be no misconception as to the position of the New York Skin and Cancer Hospital in this matter, I have been directed by the Medical Board to send you this communication and the following resolution:

The Medical Board of the New York Skin and Cancer Hospital states that the views concerning the treatment of cancer expressed by Dr. L. Duncan Bulkley do not represent the opinions of the Medical Board or the policy of the Hospital; that the New York Skin and Cancer Hospital has no medical officer who bears the title "Senior Physician," and has never had such an officer; that Dr. Bulkley's official position in the Medical Staff is "Dermatologist Emeritus"; and that it regrets the attempt of Dr. Bulkley, by the use of the title "Senior Physician," to create an obviously incorrect impression as to the authority of his views concerning cancer.

GEORGE H. SEMKEN, M.D., New York.
Secretary, Medical Board, New York
Skin and Cancer Hospital.

Biologically Speaking.—Any characters appearing in man that can be proved hereditary are normal, biologically speaking, regardless of how the characters may unfit their bearer for harmonious cooperation in the economical and social programs of civilization.—Buchanan, *Am. J. Med. Sc.*, May, 1923.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF BILHARZIASIS

To the Editor:—Is there any efficient treatment for bilharzia disease (*Schistosoma haematobium*)?

E. H. MCMILLAN, M.D., Pasadena, Calif.

ANSWER.—Christopherson introduced and placed on a sound basis the treatment of schistosome infestations. He reported the cure of seventy cases by the intravenous injection of antimony and potassium tartrate (tartar emetic), and his work has been confirmed by Taylor, Fairley, Low, Newham, Madden and Day.

The injections are given on alternate days over a period of from fifteen to thirty days. The first dose is ½ grain (0.03 gm.) of antimony and potassium tartrate dissolved in 90 minims (6 c.c.) of sterile physiologic sodium chlorid solution. The injection is repeated every other day and increased by ½ grain up to a maximum of 2½ grains (0.16 gm.) at a single sitting. In giving the larger doses, the total amount of an injection is made up to 10 c.c. with the diluting fluid. The total amount of the drug injected may amount to between 20 and 30 grains (from 1.3 to 2 gm.). Manson says that this amount may be shown by further observation to be too large. A rapid improvement occurs in the condition of the urine, and after about 15 grains (1 gm.) has been injected, all traces of blood usually disappear. Care must be taken that none of the solution escapes into the surrounding tissues, as an abscess may result. It is advisable to have the patient lie down for a few hours after an injection. A total of 10 grains (0.6 gm.) appears sufficient for children.

Emetin also has recently been given with apparent success. It is advocated for patients who are intolerant of antimony. It may be given intramuscularly, but whenever possible should be given intravenously in a 3 per cent. solution in sterile water, the dose being 2 c.c. containing 1 grain (0.06 gm.) of emetin hydrochlorid. The maximum single dose is 3 grains (0.2 gm.) for an adult. Generally one commences with ½ grain doses. A total of from 15 to 20 grains (1 to 1.3 gm.) may be given altogether.

LOCAL ANESTHETIC FOR TONSILLECTOMY

To the Editor:—1. What is the now commonly used local anesthetic for tonsillectomy, and how much could be used of it? 2. How much epinephrin should be added to a 0.5 per cent. procain solution for a local anesthetic? 3. How much epinephrin do I have to add to 8 ounces of a 0.5 per cent. procain solution to make the right composition?

G. V. WOHLLEBEN, M.D., Herreid, S. D.

ANSWER.—1. The most commonly used local anesthetic for tonsillectomy is procain in 1 per cent. solution. Two or three fluidrams may be safely used on each side.

2. If epinephrin is used, its action is sufficient if one drop is added to each dram of anesthetic. The use of epinephrin is not essential.

3. One fluidram to 8 ounces of 0.5 per cent. procain solution will give the proper effect, but it is wrong to prepare so great a quantity at one time. The epinephrin should be added before each operation, so that the preparation is fresh.

TREATMENT OF ARTHRITIS DEFORMANS

To the Editor:—Please give your latest judgment and opinion concerning the therapeutics of arthritis deformans. There seems to have developed a metabolic imbalance of a chronic nature in one of my patients of one year's standing. There is no ascertainable cause beyond a suspicion of mild gastro-intestinal stasis.

FRED W. BARGER, M.D., Salem, Va.

ANSWER.—Arthritis deformans, being in the great majority of all cases of infectious origin, requires for its proper treatment: (1) the thorough removal of all foci of infection; (2) the building up of the natural defenses of the body by optimal hygiene, including a general mixed diet, and (3) the correcting of the local malnutrition of the affected joints by hydrotherapy, dry hot air or diathermy, by active and passive exercises, and by orthopedic apparatus or operation. Vaccine therapy, even with autogenous vaccine, has not produced evident benefit.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 10. Chrm., Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, July 3. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, July 9-12. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento.

COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 10. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport. Sec. Homeo. Board, Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: Hartford, July 10-11. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford.

DISTRICT OF COLUMBIA: Washington, July 10-12. Sec., Dr. Edgar P. Copeland, 104 Stoneleigh Court, Washington.

HAWAII: Honolulu, July 9-12. Sec., Dr. G. C. Milner, 401 Beretania St., Honolulu.

INDIANA: Indianapolis, July 10. Sec., Dr. Wm. T. Gott, Crawfordsville.

MAINE: Augusta, July 10-11. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

NORTH CAROLINA: Raleigh, June 25-29. Sec., Dr. Kemp P. B. Bonner, Raleigh.

NORTH DAKOTA: Grand Forks, July 3-6. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, July 3. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-14. Preliminary Examiner, Mr. C. D. Koch, 422 Perry Bldg., Philadelphia.

RHODE ISLAND: Providence, July 5-6. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, June 26. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 17. Dir., Dr. H. R. Kenaston, Bonsteel.

UTAH: Salt Lake City, July 5. Dir. of Regis., Mr. J. T. Hammond, State Capitol, Salt Lake City.

WEST VIRGINIA: Martinsburg, July 10. Sec., Dr. W. T. Henshaw, Charleston.

WISCONSIN: Milwaukee, June 26-28. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

South Dakota January Examination

Dr. H. R. Kenaston, director, Division of Medical Licensure, South Dakota State Board of Health and Medical Examiners, reports the oral, written and practical examination held at Pierre, Jan. 16-17, 1923. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, all of whom passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University		(1922)	79.1
Northwestern University Medical School		(1901)	88.4
Rush Medical College		(1882)	82.2
State University of Iowa College of Medicine		(1920)	81.1
Medical School of Maine		(1904)	83.2
Jefferson Medical College of Philadelphia		(1920)	87.7
University of Vermont		(1914)	87.2
University of Toronto		(1893)	87.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1920)	Minnesota
Johns Hopkins University		(1919)	Minnesota
University of Kansas School of Medicine		(1915)	Kansas

North Carolina January and April Report

Dr. Kemp P. B. Bonner, secretary, Board of Medical Examiners of the State of North Carolina, reports that four candidates were licensed by endorsement of credentials at the meeting held at Raleigh, Jan. 31, 1923. The following colleges were represented:

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Emory–University		(1915)	Georgia
University of Louisville		(1911)	S. Carolina
Columbia University College of Phys. and Surgs.		(1896)	New York
Medical College of the State of South Carolina		(1911)	S. Carolina

The report shows, also, that one candidate who graduated from the Medical College of Virginia in 1916 was registered by endorsement of his Virginia license at a special session held at Raleigh, April 30, 1923.

Book Notices

VORLESUNGEN ÜBER DIÄTBEHANDLUNG INNERER KRANKHEITEN. GEHALTEN VOR REIFEREN STUDIERENDEN UND ARZTEN. Von Dr. H. Strauss, Prof. e. o. an der Universität Berlin. Mit einem Anhang Winke für die diätische Küche von Elsie Hannemann, fr. Vorsteherin des Haushaltungs-Lehrerinen-Seminars und der Kochschule des Lette-Vereins in Berlin. Fourth edition. Paper. Price, 7 marks. Pp. 471. Berlin: S. Karger, 1922.

To physicians interested in dietetics, Strauss needs no introduction. Previous editions of this book have been favorably received, and this edition is an improvement over the others. Perhaps the most interesting feature of the volume is the constant recurrence of references to the lessons of the war. It would seem that never before has such an opportunity for the study of mass action of food been obtained. An interesting contrast to this point of view is noticed in the repeated warnings as to necessity of individualization in the treatment of patients with diabetes. One need not agree with the author's point of view to appreciate the generally sound common sense which is the keynote of the volume. The discussion of obesity is particularly interesting. Diabetes is handled practically, as it was in earlier editions; we miss the newer American studies, yet we wonder which will stand the test of time. The diet tables and recipes are practical and helpful. The book is well printed; the German language as written by Strauss is easy to read.

CLINICAL SYMPTOMATOLOGY OF INTERNAL DISEASES. PART II: GENERALIZED PAIN. By Prof. Dr. Norbert Ortner. Translated by Francis J. Rebman, with an introduction by Thomas Webster Edgar, M.D. Cloth. Price, $5. Pp. 596. New York: Medical Art Agency, 1922.

The arrangement of the subject matter is similar to that of the first volume, on abdominal pain. The inherent value of this book consists not alone in the completeness of the subject, but also in clear, concise and descriptive presentation. Nothing seems to be left out. Any reader, baffled by a pain of apparently unknown origin, and in doubt as to the various causes of pain in the particular region in question, will find here a concise differential diagnosis of all causes of pain appearing in this locality. A careful history, a complete examination and discriminating use of laboratory methods are no more important than a thorough analysis of the results of these examinations. The translation is fairly well made, although at times a happier selection of words could have been made. The book can be recommended as a valuable aid to the student and to the practitioner.

LEXIKON DER GESAMTEN THERAPIE DES PRAKTISCHEN ARZTES MIT EINSCHLUSS DER THERAPEUTISCHEN TECHNIK. Unter Mitarbeit zahlreicher Fachgenossen. Herausgegeben von Walter Marle. Second edition. Lieferungen I, II and III. Paper. Price, 90 marks. Pp. 480, with 190 illustrations. Berlin: Urban & Schwarzenberg, 1923.

These are the first three instalments of an index of treatment in German, which, when finished, will consist of perhaps fifteen such instalments, or three volumes. The diligence and thoroughness characteristic of German literature of this kind is evident throughout. By the frequent use of asterisks, the reader is referred to other portions of the lexicon, in which the technic of the various remedial measures is discussed in detail. In this manner, repetition is avoided; and, at the same time, very complete information may be obtained. Handicaps to American use of this handbook are, besides the unavoidable use of the German and Austrian pharmacopeia, numerous references to German proprietary preparations, many of which would probably not be acceptable under the rules of the Council on Pharmacy and Chemistry. The lack of an analogous institution in Europe is making itself strongly felt here.

NERVE EXHAUSTION. By Maurice Craig, C.B.E., M.D., F.R.C.P., Physician for and Lecturer in Psychological Medicine, Guy's Hospital. Cloth. Price, $2.25. Pp. 148. Philadelphia: Lea & Febiger, 1922.

According to the preface, this book is written with the object of rendering knowledge of the subject more general in the hope that this will lead to efforts to prevent the disease. The descriptions of symptoms, diagnosis, prognosis and treatment are written in simple language, but with textbook formality. The subject of causation is equally formal; and though there are some excellent, but very brief, suggestions on care in training children, especially hypersensitive children, there is nowhere any consideration of psychodynamics. Probably the author, a psychopathologist of note, considers this field too complex for the general medical reader; but it is difficult to understand how preventive work is to be fostered without such considerations. Altogether, there seems little justification for the book.

TEXT-BOOK OF OPHTHALMOLOGY. By Hofrat Ernst Fuchs. Authorized translation by Alexander Duane, M.D., Surgeon Emeritus, Knapp Memorial Hospital. Seventh edition. Cloth. Price, $9. Pp. 997, with 445 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The last American edition of this textbook appeared in 1919. The present edition has been entirely rewritten and rearranged with a view to a more logical consideration. Dr. Duane points out that he has been guided in the arrangement by the thirteenth German edition just prepared by Professor Salzmann. However, he himself has modified the arrangement in the section on the anatomy of the eye, physiology, refraction and many other subjects. Throughout the entire book there are numerous revisions and additions on technic and pathology, with particular relation to new apparatus that has been made available for ophthalmologists. The Fuchs textbook has been for long an outstanding guide in this field; the constant revision and issuing of new editions is a commendable effort.

PUBLIC RELIEF OF SICKNESS. By Gerald Morgan. Cloth. Price, $1.50. Pp. 195. New York: The Macmillan Company, 1922.

The author discusses, first, the problem of sickness and poverty. Much of the information bearing on this phase of the subject is taken from the report of the health insurance commission created by the state of Illinois in 1917. That sickness is a very important factor in the causation of poverty is certain, but it is by no means the only factor, and its influence in this direction is often overestimated by enthusiastic supporters of some form of compulsory health insurance, just as overzealous prohibition advocates frequently overestimate the influence of drink in the production of poverty. The health insurance acts of Denmark, Germany and England are then briefly discussed, and their shortcomings pointed out. He then takes up two methods of legislation proposed in New York State for the public relief of sickness—the so-called "health center" and the "compulsory health insurance" bills. He believes that cash benefits and medical relief should be separated and not contained in the same act. It is a comparatively simple matter to provide for cash benefits, but it has not been possible satisfactorily to provide adequate medical service by compulsory governmental regulations. The author favors the establishment of health centers built and maintained by state aid and local taxation, and controlled and managed by state and local officers, much after the general plan of the bill presented in New York State but which was not passed.

LEHRBUCH DER GEBURTSHILFE. Von Prof. Dr. Rud. Th. v. Jaschke, Direktor der Universitätsfrauenklinik in Giessen, und Prof. Dr. O. Pankow, Direktor der Frauenklinik an der Akademie für Praktische Medizin in Düsseldorf. Second and third edition. Cloth. Price, $7.20. Pp. 789, with 501 illustrations. Berlin: Julius Springer, 1923.

This textbook of obstetrics covers its field in much the same manner as the Döderlein-Krönig textbook covers the field of gynecology. The work, as built up by Runge, was in its eleventh edition. The present is the third edition issued under the editorship of Jaschke and Pankow. As with most German textbooks, one of the most important features is the illustrations. There are numerous excellently colored lithographed reproductions of both gross appearances and microscopic sections that are not available in other textbooks. The authors call attention to the fact that the sections on physiology of the new-born and on the pathology of pregnancy have been especially revised. The literary references apparently do not cover literature later than 1920, and there are virtually no references to American work.

Miscellany

OPTICAL SERVICE IN INDUSTRY

A Report from the New England Conference of Industrial Physicians

The New England Conference of Industrial Physicians, through a committee[1] appointed for that purpose, has investigated the question of optical service as a part of the general medical service in industry. The committee considered the technical procedures employed in examining the eyes of industrial workers, the question focusing particularly on a comparison of the cycloplegic and noncycloplegic methods of refraction, and the relationship of ophthalmologists and optometrists to this work.

In pursuit of reliable information bearing on the subject, questionnaires were submitted to a number of ophthalmologists and optometrists. In framing this questionnaire, the difference in the qualifications and points of view of the two groups was kept in mind. An analysis of replies received from seventeen ophthalmologists and thirteen optometrists elicited the following information.

The majority of ophthalmologists consulted regard the routine use of a cycloplegic as essential in determining the refraction of the eyes of persons under 40 years of age. A few feel that in properly chosen cases a cycloplegic may be dispensed with. All use cycloplegics in difficult cases.

On the other hand, the majority of optometrists reported that an alkaloidal cycloplegic was not essential for the proper refraction of the eye. For the most part they advocate the fogging method, modified fogging method, repression and suppression, and dynamic skiametry. Some use prisms to relax convergence.

The ophthalmologists were practically unanimous in asserting that the inability of a skilled optometrist legally to employ alkaloidal mydriatics would lessen his efficiency as a refractionist in an industrial plant. They were nearly unanimous in their unwillingness to concede a satisfactory substitute for alkaloidal cycloplegics. The majority of them consider the optometrist not educationally qualified to cope with questions that may arise in connection with the physics and physiology of refraction, although it is admitted by some that a well qualified optometrist could deal with questions relating wholly to refraction. The optometrist's lack of knowledge of diseases of the eye is stressed by the majority of ophthalmologists as a serious handicap to his interpretation of cases in which an unsatisfactory refraction is obtained, claiming that this knowledge is necessary to the attainment of ideal efficiency as a refractionist. Ophthalmologists and optometrists are in practical agreement as to the necessity for combining retinoscopy with the subjective examination in the majority of cases.

Most of the optometrists consider that, for all practical purposes, their methods enable them to determine the degree of refractive error. They also consider that the method of dynamic skiametry yields more practical and satisfactory information than the static method.

Almost all the replies contained the suggestion that, before undertaking the examination of workers, the examiner should spend sufficient time in the work rooms to acquaint himself with the working conditions, including illumination and the visual requirements of the work. The advisability of occasional simple lectures to employees on the relation of eyestrain to health and occupation was also suggested.

An excellent optometric opinion is voiced by this quotation from one of the replies:

> As an optometrist, and in view of the great majority of refractive cases as compared with pathologic ones, which are encountered during such examinations, I quite naturally feel that the optometrist is the logical practitioner to be engaged for such purposes. However, wherever possible, I believe it advisable to engage both an oculist and an optometrist, the oculist in an advisory and consulting capacity, and the optometrist to conduct the routine examination. If thought advisable, the oculist might make the ophthalmoscopic examination in the suggested superficial examination, although all competent optometrists can detect pathologic conditions and could then refer these to the company oculist.

In defining the attitude of the American Medical Association on this question, the late Secretary of the Association wrote:

> The Principles of Medical Ethics of the American Medical Association declare that "in every consultation, the benefit to be derived by the patient is of the first importance."
>
> An optometrist is one who is skilled in, or practices "the employment of subjective or objective mechanical means to determine the accommodative and refractive states of the eye and the scope of its functions in general." In a number of states the laws defining and regulating the practice of optometry especially exclude from the means which optometrists may employ "the use of drugs." In many instances, drugs afford a valuable means for determining abnormal eye conditions, but these are rightly denied to optometrists because they have no, or at best rudimentary, knowledge of pathology and of therapeutics. Optometrists are skilled technicians rather than especially qualified practitioners of medicine.
>
> On the other hand, an oculist or an ophthalmologist is a physician who specializes in treating diseases of the eye and is in a position, both under the laws and because of his knowledge, to consult with the attending physician as freely as could a laryngologist, a neurologist, a surgeon or any other specialist. It is manifest, therefore, that the interests of the patient can better be served by an oculist or an ophthalmologist, than by one who is qualified merely as an optometrist.
>
> If the services of a specialist in diseases of the eye cannot be made available to the patient, the attending physician himself must be responsible for the care of a patient suffering from an eye condition, when his patient is refracted by an optometrist, just as the attending physician is responsible for the welfare of his patient when the physician is assisted in the treatment of the patient by a pharmacist, a nurse, a lay laboratory technician or any other partly qualified lay technician whose services are employed under the direction of the attending physician.

CONCLUSIONS

As to the use of cycloplegics, the majority of ophthalmologists consulted, all of whom have access to all methods of refraction, consider the use of homatropin or atropin essential in determining the refraction of the eye. On the other hand, the majority of optometrists consulted, who for the most part are not legally qualified to use cycloplegics, claim that their use is not essential in determining the refraction of the eye.

If refraction is regarded merely as one part of industrial eye service, the better eye service, as a whole, which it is possible for an ophthalmologist to render is indisputable—even by optometrists.

It is believed that an optometrist can render useful service in industry if he will acknowledge that he is not legally qualified to refract all eye cases satisfactorily, and will be on the alert to seek adequate medical aid when his refractive resources are unavailing or when independent eye disease seems at all likely. In addition, and in accordance with the attitude of the American Medical Association and of some optometrists, he should be willing to act under suitable medical supervision and responsibility.

The best interests of industry in the examination and treatment of the eyes of workers would appear to be served by the following alternatives, presented in the order of their value:

1. Employ a full-time or part-time ophthalmologist to handle practically all the eye service.
2. Employ a part time ophthalmologist, who will do all or part of the refraction work, or who will be available for consultation by the full-time or part-time optometrist who is doing the work.
3. Employ a full-time or part-time optometrist, who will act under suitable medical supervision and responsibility.

1. This committee consisted of Dr. H. S. Reynolds, Cheney Bros., South Manchester, Conn., Chairman; Dr. N. G. Monroe, American Optical Company, Southbridge, Mass., and Dr. H. G. Murray, Dennison Manufacturing Company, Framingham, Mass.

NATURAL GAS HEATERS

The U. S. Bureau of Mines has issued a warning on the dangers of carbon monoxid poisoning from the improper combustion of natural gas in heating appliances, founded on experience and a series of tests. The specific suggestions offered to avoid such accidents are: 1. A radiant gas heater should not be operated so that the radiants glow more than three quarters the distance from the bottom to the top. 2. Adjustments should be made from the needle valve rather than the gas cock, which should be as far open as possible when the adjustment is made. 3. Oversize orifices should not be used for low gas pressures. 4. Stoves adjusted for arti-

ficial gas are not suitable for natural gas without the substitution of a smaller orifice. 5. Manufacturers should stamp on the heater whether it is for use with natural or artificial gas. 6. Heaters should be of sufficient size to avoid the danger of operating at excessive rates. 7. Flues are always desirable. 8. One should never sleep in a room in which a flueless heater is burning without at least one window wide open.

Medicolegal

Malpractice Not Shown in Tearing of Ligaments

(MacKeown v. Baldwin (Calif.), 211 Pac. R. 477)

The District Court of Appeal of California, First District, Division 2, says that, in her seventh amended complaint, the plaintiff alleged that on July 12 she strained the ligaments of her right leg, and about September 1 employed the defendant to treat and cure the leg; that the defendant instructed a nurse who was in his employ to bend the leg backward and forward a great many times—instructed her to bend the leg as aforesaid to the right and left, which bending caused the leg to tear the ligaments at a point near the knee, and caused the ligaments to become broken and torn from the flesh; that the twisting and bending of the knee by the nurse was so done by the expressed orders of the defendant, and that the latter was negligent in that he told the nurse to bend the right leg of the plaintiff to the right and left, backward and forward, as aforesaid; that such bending, twisting and exercising of the leg caused the tearing of the ligaments, which would not have been torn if the defendant had not instructed the nurse to treat the leg as stated; and that the defendant was negligent and careless in prescribing the treatment. A demurrer was sustained to this seventh amended complaint, without leave to amend, and later a judgment was entered in favor of the defendant for his costs, which judgment is affirmed.

It is patent from the charging part of the complaint that the defendant's instruction to his assistant was "to bend the right leg of plaintiff backward and forward a great many times." It is true that the pleader in the next sentence charged that the defendant instructed the nurse "to bend the leg as aforesaid to the right and the left, which bending caused said leg to tear the ligaments." But further down such expression was clarified as showing that the pleader did not mean to state that the leg was to be bent sideways to the right and sideways to the left, but the bending to the right and left was to be backward and forward. It is clear that the pleader did not aver that the leg was to be twisted, although the pleading contained language from which that inference might be drawn. The pleader evidently thought that he was within his rights in averring that a ligament was torn by reason of the operation, but he evidently overlooked the fact that in many proper operations it is an essential part of the operation to tear ligaments. In other words, the mere matter of the tearing of a ligament is not actionable. If, by reason of a spraining or some other injury, an adhesion has taken place, it would seem to be elementary that relief can be had only by forcibly and with more or less violence tearing the ligament loose. It is not, therefore, malpractice to tear loose a ligament, but many other factors must be considered to constitute such an act malpractice.

In this pleading there was no averment of any fact or facts showing that the defendant did anything which under the particular circumstances he should not have done, nor was there any averment that under certain circumstances he omitted to do something which he should have done. These omitted circumstances should have been enumerated (if, in fact, they existed), and thereon the pleader should have predicated his contention that under such circumstances, naming them, the alleged bending was not the act of a person reasonably skilful in his profession. Thereafter, on the trial of the case, experts could be called to give testimony for and against such contention. In no other way can some cases sounding in malpractice be proved.

Taking the plaintiff's pleading by and large, and supposing that she should take the stand and prove every single word which she directly alleged, her proof would not constitute a cause of action to go before the jury, for there would be nothing to guide the jury as to whether the defendant had skilfully prescribed a bending, or whether his prescription was not reasonably skilful. But the court does not want to be understood as stating that a physician may prescribe a violent bending of the leg from side to side, and that such bending, if alleged, must be followed by additional averments; for the court does not understand that the plaintiff by her complaint made any such allegation, and, besides that, the defendant's demurrer was directly addressed to that subject and to the subject of twisting.

Untrue Answer by Physician Applying for Insurance

(Cunningham v. Penn. Mut. Life Ins. Co. (La.), 95 So. R. 110)

The Supreme Court of Louisiana, in affirming a judgment in favor of the plaintiff on a policy of life insurance issued in January to her husband, a physician, who died in the following November, says that the insured in answering the question in his application for insurance as to when he was last attended by a physician or consulted one, and for what, answered: "About ten years ago. Malaria." It appeared, however, that less than two years before he made application for the insurance, he had visited a firm of specialists in genito-urinary diseases, who diagnosed his trouble as slight nongonorrheal prostatitis and vesiculitis. The net result was that they considered his case "chiefly psychic" or imaginary, and, in the light of these facts, at that time did not think that the complaint should have affected his health to any appreciable extent and he was so led to understand by them.

It is entirely possible for answers to such questions to be knowingly untrue from a literal standpoint, and yet not fraudulent, for the applicant may, in good faith, have considered the facts not of sufficient importance to report, especially in view of the law, as announced by the decisions of this court and sustained by the jurisprudence of the other states, to the point that inconsequential illnesses do not have to be disclosed, even though they may have occasioned the attendance of a physician. Nothing was charged to show that, if the information in question here was material, the insured knew of it, or that his action was not due to honestly mistaken judgment. Fraud must be specially pleaded, and because the company's answer did not aver that the incorrect replies were given with a fraudulent purpose, the court thinks the pleading fell short of the requirement of the law to raise the question of fraud.

The examination blanks of the defendant inquired of the applicant with respect to many diseases, symptoms, etc., but nowhere did they directly or indirectly ask if he had had prostatitis or vesiculitis, by those technical names or otherwise. The insured was shown to have been a country physician, with a practice scattered over considerable territory, which necessitated his doing a great deal of riding in buggy and on horseback, and that he had had very little rest for the three years preceding his examination by the specialists. The fact that he was also a physician, and also an examiner for life insurance, and knowing the common character of his trouble, could and doubtless did cause him to consider it not of sufficient importance to be reported in his examination; and, since bad faith is never presumed, the court concludes that this was the consideration which actuated him in answering the interrogatories as he did.

It seems to the court that the best evidence on whether or not the defendant would have considered such a complaint sufficient to refuse the policy was that, notwithstanding the common nature of the trouble from which the insured was said to be suffering in men of his age, and notwithstanding the detailed inquiries about numerous other diseases and symptoms, nowhere did it ask a question that was calculated to disclose such a condition. The court takes it that the interrogatories on these blanks were deliberately prepared by experts with long experience in such matters, and, if such information was important, it would have been called for.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, San Francisco, June 25-29. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.

American Association of Anesthetists, San Francisco, June 25-27. Dr. F. H. McMechan, Avon Lake, Ohio, Secretary.
American Radium Society, San Francisco, June 25-26. Dr. Edwin C. Ernst, Humboldt Bldg., St. Louis, Secretary.
American Society of Clinical Pathologists, San Francisco, June 25-26. Dr. Ward Burdick, 652 Metropolitan Bldg., Denver, Secretary.
American Society of Tropical Medicine, San Francisco, June 25-26. Dr. B. H. Ranson, Bureau of Animal Industry, Washington, D. C., Sec'y.
Association for the Study of Internal Secretions, San Francisco, June 25. Dr. F. M. Pottenger, Title Insurance Bldg., Los Angeles, Secretary.
Association of American Teachers of Diseases of Children, San Francisco, June 26.
Medical Women's National Association, San Francisco, June 25-26. Dr. M. J. Potter, First National Bank Bldg., San Diego, Calif., Secretary.
Montana, Medical Association of, Butte, July 11-12. Dr. E. G. Balsam, 222 Hart-Albin Bldg., Billings, Secretary.
Oregon State Medical Association, Portland, July 10-11. Dr. C. L. Booth, Selling Bldg., Portland, Acting Secretary.
Western Society for the Study of Hay Fever, Asthma and Allergic Diseases, San Francisco, June 25. Dr. A. H. Rowe, Hutchinson Bldg., Oakland, Calif., Secretary.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Seventeenth Annual Meeting, held in New York, May 22-24, 1923

(Continued from page 1801)

Treatment of Certain Cardiac Irregularities with Quinidin

DR. ROBERT L. LEVY, New York: Quinidin is suitable in about 50 per cent. of cases of auricular fibrillation, the primary requisite for therapy being an efficient myocardium. The heart muscle must be competent. Cases of mitral stenosis do better than those with combined valvular lesions; but patients with no valve lesions and comparatively small hearts do best. Cases of hyperthyroidism do well if the heart muscle is not badly damaged. Rheumatic and arteriosclerotic cases do fairly well with quinidin. Hypertrophic hearts obtain only temporary relief. The technic of administration is important. The patient should be in bed, under careful observation; preferably hospitalized and controlled by the electrocardiogram. Patients can be treated at home, in charge of a good nurse, but ambulant treatment should be discarded. An interval of four or five days should elapse between digitalis therapy and quinidin treatment. The dose is given in capsules at two hour intervals to insure concentration. The first day a test dose of 0.1 gm. is given, to test for drug idiosyncrasy. The following doses are 0.4 gm., as follows: first day, once; second day, twice; third day, three times; fourth day, four times; fifth day, five times, and not more than 2 gm. in the twenty-four hour period. The first course is not continued for more than a week, and if normal rhythm is not established, a second course may be given later with good effect. The duration of effect varies from one day to more than a year. If the fibrillation is of long standing, usually the patient relapses. If prolonged quinidinization is needed, no bad effects are noted. In paroxysmal fibrillation, daily small doses can be given. Unpleasant or dangerous symptoms from the use of the drug have been noted. These may occur in cases in which the drug is contraindicated. Quinidin causes a rise in the ventricular rate, and where this is naturally rapid, palpitation may occur. Some patients are specially sensitive to quinidin, for which reason a small probatory dose is necessary. The occurrence of ectopic ventricular beats during quinidin therapy indicates cessation of the drug. There is an idea that clots are apt to appear in the appendixes of the ventricles, but emboli are not more frequent in quinidin patients. Sudden unexplained death has occurred after taking quinidin, but electrocardiographic tracings were not procured just before death, so that the mechanism is in doubt. The drug belongs to the cinchona group of alkaloids. Quinidin depresses excitability and conductivity, but not contractility of the myocardium. The ventricular output is therefore increased. Its therapeutic value is limited to a small group of patients. In the limited group, some may be helped and in some there is a real therapeutic triumph. Premature contractions and extrasystoles may disappear spontaneously; but if they do not, they may be controlled by small doses of quinidin. I must emphasize the fact that a competent myocardium is requisite before attempting quinidin therapy.

DISCUSSION

DR. LOUIS FAUGERES BISHOP, New York: No one should attempt to appraise the value of quinidin without a thorough knowledge of the natural history of the case. If the paroxysms become more frequent, they become finally established. I do not think that the dictum "Once a fibrillator, always a fibrillator" is to be considered as true. One point I consider of importance is that this idea that 70 is the normal heart rate is all wrong. Many people average a much higher rate all their lives, while some have a rate of 40, and that is normal for that particular person. Each individual has his own normal rate. McKenzie stated that 90 was an optimal pulse rate in the treatment of fibrillation. I believe that failure in treating fibrillators with digitalis is often associated with clinging to this old idea of 70 as the goal to be attained. I am satisfied when I can reduce the pulse rate to 90. I try to maintain this as nearly as possible. This is a very practical point because we want to get therapeutic results with a minimal amount of the drug. It requires a good deal of clinical acumen to judge of results.

DR. T. STUART HART, New York: In my own experience, the most suitable field for quinidin therapy is in paroxysmal cases of auricular fibrillation. We do not want to keep these patients continuously on digitalis. The cases are puzzling, and the patients are much more uncomfortable than in continuous fibrillation. The latter become accustomed to the arrhythmia and do not mind it very much; but if the attack comes out of a clear sky, the patient is very unhappy and uncomfortable. In regard to the heart rate, I differ with Dr. Bishop on that point: the cases best kept under control by digitalis were those in which the patient, while resting in bed, had a heart rate of from 60 to 70, and when they moved around, it naturally increased slightly, but they can be kept below 80 all the time. To return to quinidin, there is another class of patients that receive considerable benefit—the class with the tachycardia of exophthalmic goiter, those with neurocirculatory asthenia and other rhythmic tachycardias of which we cannot explain the cause, but which give a great deal of discomfort and sometimes approach cardiac insufficiency because the efficiency of the heart sometimes depends more on the rate than on the rhythm. The drug is very useful in these cases.

DR. C. S. DANZER, Brooklyn: The requirements in regard to quinidin are difficult to satisfy. Dr. Levy emphasized that a competent myocardium must be present, but this is difficult to determine; he also said that unfortunate reactions have occurred even when probatory doses have been given. I have known patients with fibrillation who reached old age, and they never suffered very much harm. Therefore, taking all these points into consideration, would it not be wise to use quinin, which is less toxic than quinidin, in intravenous injection to stop tachycardia? This is not so dangerous and would serve to stop disturbance of rhythm or rate which does not produce embarrassment of the circulation. We should not use quinidin unless we are forced to it.

DR. H. E. B. PARDEE, New York: The question of selection of cases is the most difficult, because we have so few reliable criteria on which to go. Patients with much enlarged hearts do not tend to revert to normal rhythm. Patients with valvular disease do not get benefit. Fibrillators of long standing do not get benefit. But there are notable exceptions to all these things in patients who have everything to predispose against the drug. Two thirds of the patients revert to normal rhythm, and four tenths can be maintained at normal rhythm, so that it seems wise to give all patients who have auricular fibrillation, with the exception of those showing signs of cardiac failure, a chance with quinidin treatment. We can treat the patients with digitalis until we

get compensation and maintain this for two weeks; then we can try quinidin. One such patient, when put on digitalis, and waiting for quinidin, returned to normal rhythm spontaneously. There is a tendency to revert to normal rhythm, and quinidin may push it along. Quinidin may be tried for a week, and if it does not have effect, then it is not worth while to continue as the effect produced will not be permanent.

DR. W. D. ALSEVER, Syracuse: Is the patient put in better shape to do his work by changing the cardiac mechanism with the use of quinidin?

DR. ROBERT L. LEVY, New York: I must also take issue with Dr. Bishop regarding the optimal ventricular rate. He said the normal rate was supposed to be about 70; there is no such thing as a normal rate. There are no "normal" biologic phenomena. I think, however, that patients with auricular fibrillation are much more comfortable with a ventricular rate of from 60 to 70, than one above 80. The fibrillator's response to effort is out of proportion with the demands made on the heart. The question raised about the difficulty of ascertaining whether or not the myocardium is competent is a just one. We all know the difficulty of estimating myocardial function, but there are certain clinical criteria which adequately serve our clinical needs. Clinical experience and judgment must be utilized. In regard to administration of quinin intravenously, Dr. Wenckebach spoke of this in his Harvey lecture. This is not an entirely innocuous procedure. Certain graphs showed ventricular tachycardia, a very serious disorder, and I would not urge giving a cinchona alkaloid in such a disturbance of the cardiac mechanism. In dogs, it gives a very marked fall in blood pressure. In regard to the use of quinidin in extrasystoles, small doses can be used with no untoward symptoms. I do not believe that quinidin is any more toxic than quinin, and it is a very much more effective drug. Dr. Pardee expresses the opinion that every person with auricular fibrillation may be given the benefit of a trial with quinidin. It has been our practice rather to eliminate those persons who might be supposed to be harmed by it. Of the remainer treated, not all will be benefited. It is difficult to predict those in whom success will be achieved. We have not been uniformly successful, but we have done no harm. I cannot answer Dr. Alsever as to what percentage of patients have their working capacity increased by the use of quinidin, but it is a considerable number.

DR. SOBEL, Rochester: What effect has quinidin dosage on hypertension, with or without arteriosclerosis?

DR. LEVY: In the presence of a competent myocardium, even with hypertension, I would not hesitate to use quinidin.

(To be continued)

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Eighth Meeting, held at Atlantic City, N. J., May 1-2, 1923

(Continued from page 1804)

Infectious Jaundice in the United States

DR. GEORGE BLUMER, New Haven, Conn.: This disease was noted first in 1812. From 1812 to the present time, the outbreaks can be divided into three groups: 1. From 1812 to 1886 there were isolated epidemics in the Southern states; (2) from 1886 to 1920 there were fifty-one reports of more or less scattered cases, never more than seven in one year, occurring in all parts of the country, with the exception of the Pacific states. From 1920 to 1923 there have been 208 epidemics, 113 of which occurred in New York State. I have been able to get reports from every state, except nine, and I do not believe that the disease has not been present there, but it has not been recognized and reported. The type of outbreak varies very much. There are the (1) family outbreaks, occurring in closely associated families or in such institutions as schools, colleges, jails or asylums; (2) city outbreaks, confined to certain districts, and (3) country outbreaks, in which the disease involves large areas. There was one state wide outbreak involving New York State. The disease has seasonal incidence, 72 per cent. of cases occurring in the fall and winter months. The age incidence is important, 72 per cent. of 3,700 cases occurring in children and young adults. The method of spread is by contact; it may be by fomites. Rats are suggested as carriers, but there are large areas in the country where no rats are found, and yet the disease is present. The disease occurs most when other rodents are hibernating. Some writers have assumed that it is a form of Weil's disease and caused by spirochetosis, but there is no foundation for this assumption. There is no relation to the typhoid-paratyphoid group, as tested by agglutination reactions. It is believed that the causative organism is at present entirely unknown.

Exceptional opportunities have been found in New Haven for the study of the disease. It begins with a definite upper respiratory tract infection, coryza and sore throat. The incubation period is from a week to ten days, but sometimes as long as four weeks. Symptoms are severe headache, pain in the back, marked gastric symptoms, anorexia, nausea, distressing vomiting and fever (the temperature is not high, except in children); jaundice appears on the fifth day, or later, the latest date being 102 days after onset. The jaundice varies in intensity; the liver is enlarged and tender. There is severe abdominal pain. The clinical picture is one of catarrhal jaundice, but jaundice is not always present. Complications are rare; recovery is slow; fatalities are few. If fatalities occur, they are in infants or pregnant women, and are associated with abortion. The postmortem picture is that of acute yellow atrophy of the liver. The disease is hard to differentiate from catarrhal jaundice; indeed, the ordinary catarrhal jaundice may be a sporadic form of this disease, although there are clinical differences. I am not certain whether this disease is related to acute yellow atrophy or not. Many of us do not regard acute yellow atrophy as a clinical entity, but rather as a reaction of the liver to various poisons. There is a difference in the number of acute yellow atrophy cases coming to necropsy at one time and at another. In Alabama, the mortality statistics are usually about 23. It suddenly rose to three times that number and fell again later. This variation is suggestive.

DISCUSSION

DR. JOSEPH MILLER, Chicago: In one case the disease failed to clear up after six weeks. The man had acute abdominal pain. He was operated on, and a normal gallbladder was found. He discharged a great amount of colorless fluid for two weeks, and later normal bile, which continued, and the case cleared up. The bile ducts were open, but no bile ever reached the biliary ducts.

DR. N. F. BRILL, New York: As Dr. Blumer said, it has been supposed that catarrhal jaundice was a spirochetal condition, but there is no pathologic basis for this. Catarrhal jaundice is not catarrhal at all. The stools in many of these cases are full of blood and mucus. There is necrosis of the cells of the liver, and an eruption in the liver, and the capillaries take up bile, which appears in the urine. It is likely that catarrhal jaundice has a seasonal relationship. In the spring and fall cases are seen, starting with vomiting, pain and nausea, followed by jaundice in a few days. These are called catarrhal jaundice. Some of these cases terminate in atrophy of the liver.

DR. HIDEYO NOGUCHI, New York: These cases are often reported as Weil's disease. The lesions in the liver and kidney are very definite. I have had experience from a serologic standpoint. Two or three years ago there was an outbreak in Indiana, and Dr. Symmers sent met there to investigate. We obtained several specimens of blood of recovered patients to test out with the spirochetes of Weil's disease. Most of the tests were negative. The transmission experiment failed. We were unable to get positive results from the serum in many cases in a school outbreak, and also in a family outbreak.

DR. W. W. FORD, Baltimore: Our impression of the outbreak which occurred in Virginia is different from that of Dr. Blumer. We felt that the portal of entry was the gastro-

intestinal tract; no cases suggested respiratory infection. The incubation period was very much extended in some instances. There were well marked cases with an incubation period of from thirty to forty days. Our results coincided with those of other laboratories. In one case we did get paratyphoid organisms from the duodenum, but I believe that this was really a paratyphoid infection. The parasite seems to attack primarily the gastro-intestinal tract. Dr. Dowell has records of cases in Nova Scotia which occurred as a summer outbreak.

DR. NORMAN GWYN, Montreal: I agree with Dr. Blumer that the disease may simulate catarrhal jaundice and may show a picture of acute yellow atrophy. At the necropsy it was difficult to think we were not dealing with acute yellow atrophy. In milder cases we were able to transmit the disease to guinea-pigs. We might have been dealing with a very active type of infection. The cases came in with a diagnosis of cholelithiasis. The first attack was over in a few days; later, pain and fever developed, and we suspected more than ordinary gallbladder lesions. There was little trouble in centrifugalizing the serum. We took twelve spirochetal organisms out of the fresh serum, and we thought we could follow these parasites through the blood very definitely. After the first two or three days, the chances of finding the organism are remote. After infecting guinea-pigs, we could find spirochetes in the blood of the ear. The clinical symptoms are definite and yet indefinite, varying from those of acute catarrhal jaundice to rapidly fatal acute yellow atrophy. In one case there was occlusion of the bile duct. The most interesting thing in the clinical picture is the acute myositis. It was debated whether muscles should be incised for supposed collection of pus. About the time of occurrence of this epidemic there were one or two unexplained deaths from myositis in which the patients had not had jaundice. Shortly afterward it was reported definitely that spirochetes had been demonstrated by the infection of guinea-pigs from a case of myositis without jaundice.

DR. HENRY KOPLIK, New York: The impression is that jaundice is a distinctly toxic affair. In some cases certain foods, not fresh, such as fish, caused infection in several children. There is enlargement of the liver, some temperature elevation, abdominal pain and an enlarged spleen. There is bile pigment in the urine. In some cases, infection in children has been reported, due to the water supply; but, though the cases were evidently toxic, no bacteria were discovered.

DR. GEORGE BLUMER, New Haven, Conn.: In regard to catarrhal jaundice, I agree that the medical profession has been dominated by Virchow's statement, up to the time of Eppinger's work. There does not seem to be obstruction of the ducts, but there is an enlarged and tender liver. In these outbreaks there are many cases in which jaundice does not occur at all. There is plenty of evidence that this disease is seasonal. That can be found in the records of the Japanese investigators. In a great majority of the reported cases in which mention is made of the urine, the urine contains not only bile but a definite amount of albumin, although not more than would be associated with other infectious cases. In the literature, a few cases are complicated by nephritis. Hemorrhagic jaundice is lacking in the vast majority of reports, differing, thus, from Weil's disease. In a certain proportion of cases there was nosebleed, but hemorrhagic tendencies were lacking. This looks as if the cases were not of a spirochetal nature. We are at a great disadvantage as to the pathology because there were few fatal cases and no necropsies, or very few. In the European literature a few necropsies were reported, and the findings in young subjects were the same as those of acute yellow atrophy of the liver. The upper air passages were evidently the portal of entry in a certain proportion of cases, but I do not wish to give the impression that this was the only mode of infection. In some instances it probably takes place through the gastro-intestinal tract. There are epidemics in which duodenal washings have been investigated. At the Mayo Clinic this was done, but the result was negative. I feel that cases seen in France were hemorrhagic icterus, or Weil's disease. In the European form it is more difficult to isolate spirochetes than in Japan. I cannot answer Dr. Koplik's question definitely. Some of the cases may be toxic in origin, but I do not think that we can explain widespread epidemics as being of toxic origin, because the patients are not under the same food conditions.

Pathogenesis of Epidemic Encephalitis

DR. SIMON FLEXNER, New York: This study on the etiology of epidemic encephalitis was commenced in 1919 by Dr. Amos and myself, and has been carried on ever since. There has been a recrudescence of the disease, both here and in Europe, thus affording further study. Credit is due to the Mount Sinai Hospital workers who succeeded in communicating the disease to rabbits and monkeys from material from patients suffering from epidemic (lethargic) encephalitis. Dr. Amos and I have worked with washings of the nervous tissue and with cerebrospinal fluid taken from persons showing typical microscopic lesions of the disease, and have never had a successful transmission, but lately we did get a successful transmission with the cerebrospinal fluid from a case of syphilis of the central nervous system. Having failed ignominiously with material from patients, we took cerebrospinal fluids indiscriminately for the work. In one case we got transmission from the contents of an herpetic vesicle. The monkey is not susceptible to inoculated material. The guinea-pig can be inoculated. Rodents are the most useful animals for this purpose. I believe that the results we have obtained by our experiments are these: We have disclosed a new variety of pathogenic organism, or, perhaps, a new group, which we shall speak of as viruses because they have not been seen. It is virulent material, up to the present unrecognizable by the usual means of identification. The material is very active, but under the conditions of the experiment is destroyed very quickly. The symptoms are those of nervous system lesions, and if successful transmission is accomplished there should follow high temperature, paralysis, convulsions and rapid death. Movements of the jaws and excessive salivation are pronounced. These symptoms are stressed, because necropsy material is not conclusive. Rabbits are very apt to show lesions of the nervous system, so that this cannot be regarded as something experimentally produced. I believe we are at the beginning of a study of a new variety of infecting organism; it is an open question whether this is the cause of epidemic encephalitis. I believe that epidemic encephalitis is separate from influenza, but probably associated with it in the same way that pneumonia may be associated. The two diseases may be coincident, but independent. These results of four years of study are not wholly negative if we have widened our horizon with reference to pathologic infective agents, although we may not have established a specific etiologic agent in epidemic encephalitis.

DISCUSSION

DR. HANS ZINSSER, New York: Dr. Flexner has shown great conservatism in his conclusions. A great deal of confusion has resulted from the fact that in dealing with herpes virus we have concluded that it was the same substance as the virus of encephalitis. There is also a filtrable virus of fowl pox. So little is known of filtrable viruses that it is unsafe to draw conclusions. We easily infected a rabbit on the cornea with herpetic virus from a common cold. We kept the strain running along, and have had one strain from March, 1922; but we have discontinued the work, as regards herpetic virus. In human beings, the virus may be present in the saliva when there is no herpes. We had the same unsatisfactory results as Dr. Flexner did when we tried to transmit encephalitis. We had to throw out a great many rabbits on account of mixed infection, even after two or three passages. Merely planting a piece of brain was not enough to give inoculation. The brain must be mashed up and an emulsion made. We have three cases valid at present, one at the third generation, and one at the fifth generation. There is a tremendous irregularity in individual rabbits. I agree with Dr. Flexner that these viruses are a new group of organisms, but I don't believe that encephalitis and herpes are the same.

DR. EMANUEL LIBMAN, New York: Further study will decide whether these viruses are the cause of the disease or whether they are associated. In the transmissions done by our workers from nasal secretions, they took controls from the surgical side where there were no contacts. We did not use herpes virus longer than six weeks. It is possible that encephalitis may or may not have direct relation to the disease. Dr. Loewy has been successful in getting organisms from the virus of encephalitis, from the brain and nasal secretions of patients. That organism creates lesions in the rabbit, but it acts differently from influenza. Introduced intratracheally, it does not produce the same lesions as encephalitis. Dr. Loewy implanted the organisms from influenza intratracheally into rabbits and produced thrombosis of the capillaries and arterioles, but the organism introduced intradurally did not produce encephalitic lesions in the brain. Thus we have not produced encephalitis with organisms from influenza cases.

Pathologic Physiology of Botulism

DRS. C. W. EDMUNDS and PUTNAM C. LLOYD, Ann Arbor, Mich.: The symptoms of this disease are entirely motor—the dysphagia, weakness of the legs and respiratory difficulty, marked constipation, dryness of the mouth. The patient dies of respiratory failure. My theory is that central symptoms are not essential to the botulism intoxication, which is entirely a peripheral affair caused by paralysis of the motor nerve endings in the muscles. Experiments on guinea-pigs and cats by inoculation of botulinus poison produced weakness of the hind legs, great respiratory difficulty and paralysis of the abdominal muscles. The chest is pulled up in the effort to carry on respiration. The whole vasomotor system is normal; the circulatory system is normal. The difficulty is in the respiratory system entirely from paralysis of the pharyngeal muscles. Animals kept on artificial respiration for eighteen hours recovered. The condition reminds one of curare paralysis, except that it is not so complete. I believe that these findings alter the clinical point of view and give us a much more hopeful prognosis.

A New Classification of Mycetismus or Mushroom Poisoning

DR. W. W. FORD, Baltimore: It was formerly supposed that about a dozen varieties of mushrooms contained the poisonous substance muscarin. Now we know that about eighty species are poisonous. During the food shortage of the war the fields were searched for edibles, with the result that in Germany and Austria, particularly, many cases of mushroom poisoning occurred. There are certain main types of mushroom intoxication: (1) entirely gastro-intestinal, in which the attack ceases when the stomach is empty; (2) general catharsis, which is painless; (3) violent vomiting and pain, but no involvement outside the gastro-intestinal tract; (4) a choleriform type producing widespread degeneration of the cells. There is an incubation period for twenty hours after ingestion, followed by a violent, painful gastro-intestinal crisis. The patient appears to recover, but gets a relapse, with violent intestinal pain, collapse and death in a few days. In this type, the cells of the liver and spleen, and the voluntary and involuntary muscles show degeneration. There are evidences of attempt at repair on the part of the liver and kidney. The first symptom is a severe nephritis. Treatment in California, which has been successful, has been mainly directed to the kidney, and with emptying of the intestinal tract and irrigation of the bowel with potassium permanganate solution. The last type is that of nervous system intoxication by muscarin, which comes on half an hour after eating the mushrooms. There are pin-point pupils; the eyes water; there are salivation and diarrhea. Patients die of the effect of the muscarin on the heart. The heart dilates and stops in diastole. Atropin is the physiologic antidote, given subcutaneously. There are two other rare types which may be mentioned, one caused by the morels, or helvella, which produce helvellic acid. These resist the action of the gastric juice and produce hemolytic intoxication. The patient voids chocolate-colored urine. Another kind, which looks like the meadow mushroom, produces an intoxication similar to ethyl alcohol. The patient is hilarious, has staggering gait, sees variation in the size of objects, and finally collapses in a stupor. The patients recover in these two types, but in weak persons and children, mushroom poisoning of any kind may produce death from heart failure.

Chylous and Chyliform Ascites

DR. M. A. BLANKENHORN, Cleveland: It has been supposed that, after centrifugalizing chylous fluids, in the remaining nonchylous portion the turbidity is due to abnormal proteins, such as mucin and lecithin. I have found that the turbidity in nonchylous fluids is due to fat in the form of fatty acids or nonsaturated fat. I have been successful in making a nonchylous fluid experimentally from an emulsion of proteins and fat, by using nonsaponifiable fat in the form of liquid petrolatum and distilled water. The unusual behavior of the finely divided fat is because of the colloid properties taken on by particles in minute suspension. It has electric properties explainable by surface tension phenomena in relation to electrical charge. We can, therefore, have a pseudochylous fluid with fat alone. We examined the fluid from various patients with various lesions, in order to discover the source of the turbidity. Various processes—heat, coagulation, extraction, freezing, dialysis, peptonization, electrolysis—were used. We found that the turbidity of the fluid is due to fat alone, and we discarded the term pseudochylous fluid. It would seem that we must direct our attention to the lymph vessels and blood capillaries where these fluids are produced, and discard the idea of unusual proteins.

An Exceedingly Powerful Oxytocic and Pressor Substance Obtained from the Posterior Lobe of the Pituitary Gland

DRS. JOHN J. ABEL and C. A. ROUILLER, Baltimore: The posterior lobe of the hypophysis has been supposed not to have an internal secretion. Dixon, however, reports that he can find the posterior lobe principle in the spinal fluid and that, injected into an animal, it will increase the substance in the spinal fluid. Byrne also notes that the posterior lobe substance opposes the action of insulin. I believe that we have found that: (1) the posterior lobe principle raises arterial pressure and keeps it up for a long time; (2) it acts on muscle tissue, causing it to contract; (3) it has diuretic action; (4) it constricts the capillaries of warm-blooded and of cold-blooded animals, and (5) it has tonic action on plain muscle tissue. So far we have two well known active gland principles—epinephrin and thyroxin. Histamin is the most powerful plain muscle stimulant that we know of, a proportion of 1:200,000,000 causing contraction of the guinea-pig's uterus; but with this posterior lobe substance a proportion of 1:19,750,000,000 will produce the same result, that is, it is 1,250 times as powerful as histamin. We have now reached a point at which the product is 97 per cent. pure. We hope that it will be of use in the isolation of other products, such as insulin and secretin.

The Remedial Efficacy of Splenectomy in Chronic Thrombocytopenic Purpura Hemorrhagica

DRS. N. E. BRILL and NATHAN ROSENTHAL, New York: Splenectomy has been found in our hands to be a truly life-saving measure in cases of thrombocytopenic purpura hemorrhagica. This operation has been tried in twelve cases. The spleen showed the same picture in all cases, with enlarged follicles, but no attempt at fibrosis, as described by Banti. There were no platelets found in the spleen. I believe that platelets are a feature of the escape of the blood from the tissues. These platelets are very large, and look like megaloblastic cells. The bleeding occurs because of the enormous size of the platelets. In these cases, immediate improvement was noted after operation, with great regeneration of the blood picture. Up to the present time the patients remain practically cured.

DISCUSSION

DR. H. Z. GIFFIN, Rochester, Minn.: We submitted a case of this type to splenectomy in March. This patient had

hemorrhage before coming under observation, with epistaxis and ecchymoses and bleeding from the uterus lasting as long as thirty days. She had twelve transfusions to maintain her condition. The red blood cells numbered 1,600,000, with hemoglobin, 18 per cent. The coagulation test was normal, but the bleeding time was prolonged; the prothrombin time was prolonged; the platelet count varied between 40,000 and 80,000. After a series of transfusions and the use of coagulants, we got the red blood cells up to 3 million and hemoglobin to 56 per cent. The patient was then subjected to splenectomy, with the same spectacular results that Dr. Brill describes. Six hours after operation, the platelet count rose to 200,000 and then to 700,000; sixteen days after operation, it was 350,000. The bleeding time was two and one-half minutes, four weeks after operation; the red blood cells numbered 4 million, and hemoglobin was 68 per cent. The pathologic changes in the spleen were interesting. There were acute splenitis and great numbers of polymorphonuclears. This is a life-saving measure. This patient would have had recurrence and died of hemorrhage.

DR. R. MINOT, Boston: Two years ago I saw a woman who had had the disease ten years. There were always petechiae and a small amount of bleeding. The spleen was removed two years ago. It was not possible to obtain a careful count immediately after operation. Forty-eight hours afterward, the platelets numbered 300,000. They had dropped below 10,000 before operation. The patient is living and well, with normal hemoglobin, and platelets above 175,000. I think that this type may be congenital as well as acquired. In some acute cases, spontaneous cures do occur; but there are no spontaneous cures in the chronic type. The pathologic changes in our cases resemble those described by Dr. Giffin.

DR. E. B. KRUMBHAAR, Philadelphia: Very remarkable increase in platelet count follows removal of the spleen, but the rise is temporary. I do not think that we should feel that the subsequent fall of platelets has nothing to do with the disease. It is not proved that they are not a cause of the purpura. I should like to know, in the four cases that were not cured immediately, how the platelet curves compare subsequently with those in the cases that were cured. There is a relation between the platelet count and the symptoms, or the platelet rise is enough to relieve the condition for the moment. It is sufficient in some cases to prevent recurrence.

DR. N. E. BRILL, New York: The pathologic picture was one of myeloid metaplasia. There were no platelets in the spleen or in the reticulated epithelium. I think that the platelets are used in the repair, but they are unusually large. Ordinary platelets are less than a micron in diameter. Six months after operation there was an unusual rise in the platelet count, but for one week after operation it was the same as before operation. In the case of one boy, the count is 20,000, far below the number associated with bleeding. It remains for the future to decide whether these cases are permanently cured. In a few cases there were small recurrences of bleeding, which eventually disappeared.

The Etiologic Relation of Achylia Gastrica to Combined Spinal Sclerosis

DR. DOUGLAS VANDERHOOF, Richmond, Va.: In a study made of forty-five patients with achylia gastrica, twenty-nine had combined sclerosis of the spinal cord. Seven patients who received complete clinical and laboratory studies form the basis of this report. Fractional gastric analyses were made. The blood counts were done, and showed no evidence of pernicious anemia. The spinal fluid Wassermann test was negative. In regard to infective foci: One patient had infected tonsils; one a mild oral sepsis which cleared up. Attention was given to all foci of infection, and an addition of 1 teaspoonful of dilute hydrochloric acid was added to the meal. Very remarkable results followed this treatment. Not only was the achlorhydria relieved, but symptoms of spinal sclerosis, such as paresthesias of the extremities, flaccid or spastic paraplegias, or acro-ataxia, were relieved, or disappeared in the course of some months. This disease is not hereditary, and syphilis does not play a part in it. Its association with achylia has not been noted until recently. According to our studies, achylia is as constant a finding in acroparesthesia as it is in pernicious anemia. It is found that one third of the patients having combined spinal sclerosis have pernicious anemia. In my series, fourteen patients have pernicious anemia. The failure to note this association is due to the fact that the disease has been investigated entirely by neurologists, and the spinal changes in pernicious anemia have been studied by clinicians. Hearst and Bell discussed the relation of oral infection, absence of hydrochloric acid and secondary intestinal infection. It would seem that achylia, accompanying or preceding the malady, is the predisposing cause. Hydrochloric acid is nature's method of defense; without it, bacteria from the mouth and throat pass to the intestine without being digested by the gastric juice. The bacteria may affect the nervous tissues, or may influence the bone marrow unfavorably; thus, one patient may suffer from nervous lesions and another from disturbance of the blood-forming organs. This finding throws considerable light on the origin of pernicious anemia, and the presence of hydrochloric acid in the test meal is against the diagnosis of combined sclerosis in doubtful cases. In my experience, pernicious anemia has always been a fatal disease. The prognosis of combined spinal sclerosis and achylia gastrica without pernicious anemia is much more favorable. The spinal cord symptoms can be reduced greatly. There is reason to believe that every person suffering from achylia gastrica is a potential case of pernicious anemia or of combined spinal sclerosis. Patients should receive a regular amount of hydrochloric acid with each meal until the stomach renews its secreting activity.

DISCUSSION

DR. W. S. THAYER, Baltimore: We know that pernicious anemia is preceded by diarrhea, associated with anacidity of the gastric juice. This is present in almost all pernicious anemia cases. Cord changes are not infrequent in pernicious anemia, and are often the first to be noted. In the instances in Dr. Vanderhoof's series in which cord changes have been found with achylia gastrica, the fact that they have been held in abeyance or materially improved for years is a very interesting result.

DR. B. W. SIPPY, Chicago: I should like to know how much hydrochloric acid Dr. Vanderhoof gives. Our patients cannot take much by mouth because the pharynx will not tolerate it. It required 900 drops to digest a meal, and that is practically impossible to administer clinically. Would the small doses that he gives have much influence on the bacterial flora of the intestinal tract? It is very difficult to reason from cause to effect. We must be careful that we are not attributing too much effect to very small doses.

DR. H. S. PLUMMER, Rochester, Minn.: A large number of people are born with a diathesis whereby they have no hydrochloric acid. These people are naturally prone to develop certain clinical pictures—scaly skin, anacidity, and a basal metabolism 15 or 20 per cent. below normal. Perhaps, the patient's mother comes in and she shows very low basal metabolism. Arthritis and creaky joints are apt to be seen in these cases.

DR. DOUGLAS VANDERHOOF, Richmond, Va.: For fifteen years I have been giving large doses of dilute hydrochloric acid. I have given a teaspoonful at each meal, and later when the duodenal tube came into use I have been giving a dram through the duodenal tube. The acid is suspended in 6 ounces of water. I have subtracted specimens to see what happened. A dose of 1½ drams (5.6 c.c.) of dilute hydrochloric acid will make a beverage which is the same as the acidity of the gastric juice. The observations happened accidentally. I was giving these patients hydrochloric acid doses, and they happened to be cases of combined spinal sclerosis. I had never supposed that it would help the spinal cord symptoms to supply secretion to the stomach, but in four out of the seven patients the improvement has been unusual and uninterrupted.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

5: 345-460 (April) 1923

*Sarcoma of Uterus. J. C. Masson, Rochester, Minn.—p. 345.
*Urinary Tract of Eighty Fetuses and Young Infants. G. V. Brown and C. Corbeille, Detroit.—p. 358.
Glycosuria Test for Pregnancy. P. F. Williams, Philadelphia.—p. 369.
Craniotomy. A. M. Mendenhall, Indianapolis.—p. 372.
Double Salpingo-oophorectomy with Partial Auto-Ovarian Transplantation, Followed by Twelve Years of Menstruation, Normal Pregnancy and an Uncomplicated Menopause at Fifty-One Years of Age. W. S. Bainbridge, New York.—p. 379.
Transplantation of Cervix. W. W. Babcock, Philadelphia.—p. 380.
Pernicious Effects of Use of Stems in Uterus, and Danger of Introducing Sounds and Other Foreign Bodies Without Preparation. J. N. West, New York.—p. 383.
Renal Tuberculosis. Diagnosis and Treatment. H. D. Furniss, New York.—p. 386.
Bladder Surgery in Relation to Fourth Era of Surgery. R. T. Morris, New York.—p. 392.
So-Called Hernia in Mammary Areola: Etiology of Mamma Areolata and Vicarious Menstruation. G. L. Moench, New York.—p. 394.
*Toxemias of Pregnancy from New Aspect. O. M. Gruhzit, Detroit.—p. 400.
Management of Third Stage of Labor. C. A. Gordon, Brooklyn.—p. 403.
Patency of Fallopian Tubes Ascertained by Transuterine Injection of Fluids. I. S. Stone, Washington, D. C.—p. 408.
*Phenobarbital Sodium (Luminal Sodium) Treatment for Hyperemesis Gravidarum. R. Luikart, Omaha.—p. 410.
Obstetrico-Gynecologic Diagnosis. Report of Three Cases (Hematosalpinx; Dermoid Cyst; Eclampsia). A. P. Leighton, Portland, Me.—p. 415.
Operation for Retrodisplacements of Uterus. J. W. Keefe, Providence, R. I.—p. 418.

Sarcoma of Uterus.—In the series of fifty cases analyzed by Masson there were two deaths, an operative mortality of 4 per cent. Of the remaining forty-eight patients, one was not heard from. Ten had died, four within one year of the date of operation, and the remaining six within two years. In all probability, most of them died from recurrence of the malignant growth. Thirty-six (76.59 per cent.) are apparently in good health, or at least have no symptoms to suggest recurrence. One patient reported that she is feeling much worse, thinks there is a recurrence of the growth, and has marked dyspnea, weakness and dropsy, evidently a case of recurrence, but Masson feels that the possibility of a cardiorenal disorder must also be considered, as it is now five years since her operation.

Urinary Tract of Fetuses and Infants.—Only twenty-five, or 31.25 per cent., of the eighty cases studied by Brown and Corbeille were found entirely free from pathology. A group comprising 13.75 per cent. of the cases showed only such slight changes as edema and passive congestion. Of the 68.75 per cent. abnormal cases, only nine presented negligible alterations.

Typing of Blood of Eclamptic Mother and Her Child.—Blood typing was undertaken by Gruhzit to determine incidence of incompatibility of the blood of the mother and her offspring in normal pregnancy as well as in toxemias. In every case of eclampsia the mother's and baby's blood grouping produced agglutination of the baby's red cells by the mother's serum. Not a single case of normal pregnancy showed a possible blood grouping which could result in agglutination of the fetal red cell elements by the mother's serum in vivo or in vitro. The noticeable signs and symptoms of an eclamptic attack appear toward the later stages of pregnancy, i. e., at the time of the most rapid growth of the fetus. The increased anabolic process goes hand in hand with increased rate of catabolism. Increased amounts of waste products, including the waste products of the blood system, are thrown or diffused into the mother's system. Whether the specific agglutinating substance is passed to the mother's system in the waste products as an albumin molecule or as a hypothetical "agglutinogen," is not known. In the fetal body it is associated with the red cells. When in the mother's blood stream, it is agglutinated and suspended as fine colloidal particles. A new colloidal state of the blood is produced which probably accounts for the more viscous "thicker," blood of the eclamptics. This new state of the blood Gruhzit believes is the paramount factor of the disease. The physical and chemical processes which associate with a colloidal substance in the blood stream may readily explain the signs and symptoms of eclampsia.

Phenobarbital Sodium in Treatment of Vomiting of Pregnancy.—Luikart has administered phenobarbital sodium to allay vomiting and nausea long enough for food to be taken and assimilated. The use of phenobarbital sodium is not an immediate cure for hyperemesis gravidarum, but a relief to such an extent that the patient can often be carried to the end of the third month of pregnancy with her weight and general strength but little impaired. Phenobarbital sodium, from 1 to 2 grains, is administered hypodermically, every four hours, in the majority of cases, though it may be given at shorter intervals, for three or four doses, if relief is not prompt. If the woman is seen early, regular feedings are continued—six a day. Great care must be taken with the general management. There should be examinations of urine, a record of total intake and output of fluids, daily blood pressure determinations, pulse, temperature and respiration records. The sensation caused by phenobarbital sodium is described by patients as a "fluid feeling" of the entire body. Occasionally the patient becomes a day sleeper and complains of wakeful nights. A hypodermic of 7 grains of caffein sodium benzoate, administered with the phenobarbital sodium, helps to overcome this, and does not interfere with the quieting effect on the nausea of the phenobarbital sodium. The only untoward effect of phenobarbital sodium thus far observed has been urticaria. This is relieved, to a large degree, by sponge baths of 1 per cent. lysol solution as needed.

American Review of Tuberculosis, Baltimore

7: 67-140 (April) 1923

Nature of Tuberculosis of Eye. W. C. Finnoff, Denver.—p. 67.
Tuberculosis of Eye and Its Treatment: Review of Recent Literature. C. A. Clapp, Baltimore.—p. 81.
Studies on Biochemistry and Chemotherapy of Tuberculosis: XXV. Tissue Changes Produced by Action of Lipins of Tubercle, Grass and Colon Bacilli, and of Liver. L. W. Ray and J. S. Shipman, Chicago.—p. 88.
Studies on Biochemistry and Chemotherapy of Tuberculosis. XXVI. Fat-Splitting Ferments in Lymphocytes. C. C. Reed, Chicago.—p. 105.
*Demineralization in Tuberculosis: Distribution of Calcium in Tuberculous Guinea-Pig. O. Barkus, Saranac Lake, N. Y.—p. 111.
*Dish Towel as Source of Tuberculous Infection. C. Floyd and L. Sikorsky, Boston.—p. 117.
*Apical Tuberculosis. O. H. Brown, Phoenix, Ariz.—p. 120.
Corporation Care of Tuberculous Employees: Experiment as Carried Out in Colfax by Large Corporation. R. A. Peers, Colfax, Calif.—p. 133.

Demineralization in Tuberculosis.—An appreciable loss of calcium due to progressive tuberculosis could not be proved in any case by Barkus. Spontaneously healed tuberculous lesions produced by infection with a strain of low virulence, which should, in the light of the theory of demineralization, yield a low calcium content, showed, on the contrary, quite normal values.

Dish Towel as Source of Infection with Tubercle Bacillus.—In a series of twenty-five instances of guinea-pigs inoculated from the washings of dish towels used by tuberculosis patients no positive results were obtained by Floyd and Sikorsky. In three control experiments, in which gauze was thoroughly impregnated with viable tubercle bacilli and thoroughly washed, no positive results were obtained. The most reasonable explanation of these negative results would seem to be that the strong alkali soap or soap powder used for a period of weeks in the home must very deleteriously affect any viable tubercle bacilli that may be caught in the meshes of the dish towel and either kill them or so impair their vitality as to make them unable to produce infection in small numbers.

Mode of Infection in Apical Tuberculosis.—The paramount determining factor in the selection of the apices by pulmonary phthisis, in Brown's opinion, is the long continued assault, which occurs in all adults, on the topmost bronchial

lymph nodes by bacteria and their toxins. The germs and their poisons are picked up by the lymphatics from the nose and mouth and the entire head, and are passed on by the lymphatics to the deep cervical nodes and thence to the mediastinal and bronchial nodes. The swelling of the bronchial lymph node dams back the lymph into the area drained; since it is the topmost bronchial node which usually is affected most seriously, the resulting stagnant lymph will be in the apex of the lung, where already the circulation of lymph, by virtue of the relative immobility of this part of the lung, is at a low ebb. In this way there is produced a fertile soil for tubercle bacilli coming from whatever source they may.

Archives of Dermatology and Syphilology, Chicago

7: 573-720 (May) 1923

*Biologic Reactions of Arsphenamin. IV. Effect of Large Doses on Coagulability of Blood. J. Oliver and E. Douglas, San Francisco.—p. 573.
*Value of Bismuth Salts in Treatment of Syphilis. V. Pardo-Castello, Cuba.—p. 586.
Hydrogen-Ion Concentration of Surface of Healthy Intact Skin. H. Sharlit and M. Scheer, New York.—p. 592.
*Aspergillus in Scalp Lesions Following Red-Bug (Leptus) Bites. K. M. Lynch, Dallas, Tex.—p. 599.
Unusual Case of Dermatitis Venenata Caused by Colored Paper. H. G. Rowell, New Bedford, Mass.—p. 603.
*Ulcus Epidemicum. Preliminary Report. W. B. Adams, Beirut, Syria.—p. 604.
Leukoderma Acquisitum Centrifugum (Sutton). J. H. Stokes, Rochester, Minn.—p. 611.
Frambesiform Syphilid: Report of Case. H. Goodman and E. F. Traub, New York.—p. 619.
Bullous Eruptions in Hemorrhagic Sarcoma of Kaposi and Lichen Planus. F. Wise and J. J. Eller, New York.—p. 625.
Pituitary Gland Dystrophies. L. Hollander, Pittsburgh.—p. 632.

Effect of Large Doses of Arsphenamin on Blood Coagulability.—Oliver and Douglas did not find any evidence indicating marked action of arsphenamin on thrombin or its precursors. They did find, however, a marked change in the properties of the fibrinogen and other globulins of the arsphenamin plasma, rendering them incoagulable to heat or thrombin. No action on thrombin could be demonstrated. The practical importance of the effect of arsphenamin on the coagulability of the blood is not very evident at the present time. In its therapeutic use, the concentration needed to produce definite changes is never reached. The experiments detailed indicate only that there is some reaction between the arsphenamin and the globulins which renders them incoagulable to thrombin and heat, and that they are not "destroyed" as they may be recovered by precipitation by carbon dioxid.

Value of Bismuth Salts in Treatment of Syphilis.—Pardo-Castello reviews the literature and presents results obtained in the treatment of nine cases. Quinin bismuth iodid seems to be the compound of choice. The author has not observed a single accident with its use in more than 180 injections. Sodium and potassium tartrobismuthate is painful, and stomatitis is likely to occur with its use. Spirochetes disappear from the chancre and mucous patches after the second or third injection of quinin bismuth iodid. The primary lesion and all the secondary manifestations heal in a short time, and the general disturbance and headache also disappear after the fourth or sixth injection. Tertiary lesions respond more slowly, but they finally disappear entirely. The effect on the Wassermann test is marked. It became negative in seven of nine cases. Bismuth, in the light of Pardo-Castello's experience, is entitled to a prominent place among antisyphilitic remedies. Time alone will demonstrate whether bismuth will take the place of the other antisyphilitics or be used in combination with them. It will also show whether the effects are permanent.

Treatment of Aspergillus Scalp Lesions.—A sulphur ointment was used by Lynch in the treatment of some of these sores. The hair was not disturbed, the masses of exudate were removed and the ointment applied twice daily on the elevated and eroded area. A few small yellowish masses reformed but were easily removed, and in a few days no further formation occurred. The skin lesion gradually disappeared in the course of ten days or two weeks.

Epidemic Tropical Ulcers.—Adams describes an epidemic of ulcers, frequently called "tropical," which began in Syria in 1916, swept through the land, reached its height in 1919, and now seems gradually to be disappearing. It is a dry weather disease, flourishing during the summer drought and never beginning in the rainy season. The painful, obstinate ulcers invariably occur on the exposed parts of the poorer people of the community. The etiology seems to be a fusiform bacillus and a commensal spirillum found in the edges; but a rich flora flourishes on the floor of the ulcers. The host, if there be no other than man, is unknown, as is the carrier. The treatment calls for prompt and energetic measures; but at best, the healing is slow. The painful ulcers incapacitate patients for work for a long time, thus causing a serious loss to the community.

Archives of Neurology and Psychiatry, Chicago

9: 547-688 (May) 1923

Some Problems in Epilepsy. W. Timme, New York.—p. 547.
Ecology of Epilepsy. I. Epilepsy in Colonies. C. L. Dana, New York.—p. 551.
Id. II. Racial and Geographic Distribution of Epilepsy. C. B. Davenport, Long Island, N. Y.—p. 554.
Epilepsy and Convulsive State. F. Kennedy, New York.—p. 567.
Symptomatic Epilepsy in Birds. Anatomico-Pathologic and Clinical Report. G. Mingazzini, Rome.—p. 576.
Infantile Progressive Muscular Atrophy of Werdnig-Hoffmann Type. Case Report with Necropsy. J. C. Michael, Minneapolis.—p. 582.
*Cystic Blastomycosis of Cerebral Gray Matter. Caused by Torula Histolytica Stoddard and Cutler. W. Freeman and F. D. Weidman, Philadelphia.—p. 589.
*Experimental Convulsions. Epileptogenous Zones of Central Nervous System. L. J. Pollock, Chicago.—p. 604.
*Studies on Epilepsy. I. Convulsions Experimentally Produced in Animals Compared with Convulsive States in Man. Preliminary Report. C. A. Elsberg and B. P. Stookey, New York.—p. 613.
Metabolic States Contributing to Uremia. N. B. Foster, New York.—p. 627.

Cystic Blastomycosis of Brain.—Freeman and Weidman report a twelfth case of cystic infiltration of the cerebral gray matter with a blastomyces. The cinical picture is that of tuberculous meningitis or unlocalized brain tumor, but the organisms are readily found in the spinal fluid. The organism in this case was *Torula histolytica,* Stoddard and Cutler. The disease was transmitted to guinea-pigs. These developed a general infection, and, in one animal, there was cystic infiltration of the brain and testes.

Experimental Convulsions.—Pollock states that from his experiments no conclusive evidence could be adducted that an isolated segment of the brain stem contained epileptogenous elements. It appeared highly probable, however, that such was the case. It would seem that epileptogenous qualities are possessed by the ganglion cells both of the brain and the brain stem; that convulsive movements may be evoked by proper stimulation of such cells at any level; and that the first symptom produced depends on the level so stimulated.

Experimental Convulsions Produced by Shutting Off Blood Supply to Brain.—Elsberg and Stookey report on their work in this field, the convulsions being produced, not by the introduction of a drug into the circulation which may affect every part of the body, but by the simple method of shutting off the blood from the brain. The method also made it possible to establish an artificial circulation through the brain, so that a variety of fluids could be passed through the intracranial circulation. All that was necessary was to inject fluid into a carotid artery above the clamps and to drain off the fluid from one of the jugular veins, a ligature having been tied around the animal's neck and all structures excepting the trachea, esophagus, carotid vessels, and vagus nerves being compressed. This ligature prevents the return of the fluid into the general circulation, except for an amount, that cannot be controlled, that is carried off through the veins in the spinal canal. Thus there was a cranial organism—a living test tube for the study of the influence of various solutions and various drugs on the brain.

Iowa State Medical Society Journal, Des Moines

13: 177-220 (May) 1923

Subacute Bacterial Endocarditis. W. L. Bierring, Des Moines.—p. 177.
Routine Wassermann Test in Ophthalmology. H. B. Gratiot, Dubuque.—p. 186.

Opportunities and Means of Giving Patients Consulting Surgeon a Better Service. H. J. Vanden Berg, Grand Rapids, Mich.—p. 191.
Hyperemesis Gravidarum. D. F. Crowley, Des Moines.—p. 195.
Consideration of Some Practical Problems in Artificial Feeding of Normal Baby. J. D. Geissinger, St. Paul.—p. 198.
Surgical Diseases of Urinary Organs; Plea for Early Recognition. W. Downing, Le Mars.—p. 201.
Function of Gallbladder. G. M. Crabb, Mason City.—p. 204.

Journal of Comparative Psychology, Baltimore

3: 85-145 (April) 1923

Some Effects of Duration and Direction of Rotation on Postrotation Nystagmus. J. Q. Holsopple, Baltimore.—p. 85.
Validity of Tests of Musical Talent. M. Schoen, Pittsburgh.—p. 101.
Behavior of Birds in Maze. M. P. Sadovinkova, Moscow.—p. 123.
Brightness Value of Red for Light Adapted Eye of Calf. E. Kittredge. —p. 141.

Journal of Infectious Diseases, Chicago

32: 315-399 (May) 1923

Rabbit Spirochetosis. A. S. Warthin, E. Buffington and R. C. Wanstrom, Ann Arbor, Mich.—p. 315.
*Hypertrophy of Hemolymph Nodes in Texas Fever Immunes. A. S. Warthin, Ann Arbor, Mich.—p. 333.
Bacterial Parasitism, Bacterial Pathogenism, and Resistance to Bacterial Infection. A. I. Kendall, Chicago.—p. 341.
Estimation of Small Amounts of Carbohydrates by Bacterial Procedures. A. I. Kendall and S. Yoshida, Chicago.—p. 355.
Carbohydrate Identification by Bacterial Procedures. A. I. Kendall, Chicago.—p. 362.
Measurement of Carbohydrate Mixtures by Bacterial Procedures. A. I. Kendall and S. Yoshida, Chicago.—p. 369.
Carbohydrate Configuration and Bacterial Utilization. A. I. Kendall, R. Bly and R. C. Haner, Chicago.—p. 377.
*Etiology of Spontaneous Ulcer of Stomach in Domestic Animals. E. C. Rosenow, Rochester, Minn.—p. 384.

Hypertrophy of Hemolymph Nodes in Texas Fever Immunes.—Warthin asserts that in many Texas fever immunes there occurs a very marked generalized hypertrophy of the hemolymph nodes, which is to be interpreted as a manifestation of protective reactions against a latent infection. Inasmuch as Meyer has emphasized the involvement of the hemolymph nodes in East Coast fever, there appears to be a special predilection for these organs in piroplasma infections.

Streptococci Cause Experimental Ulcer of Stomach.—Streptococci were isolated consistently by Rosenow in pure cultures or in predominating numbers from a series of ulcers in the hog, calf, cow, sheep, and dog. This organism was demonstrable in the tissues, and the number was roughly proportional to the acuteness of the condition. There was an increasing incidence of pure cultures in the tissues as the distance from the source of contamination, the ulcerated surface, increased. Ulcer, hemorrhage, and infiltration of the stomach were produced in 86 per cent. of rabbits and dogs injected with the freshly isolated cultures from ulcers in the different species, often with no lesions elsewhere. Similar results were obtained with cultures of the streptococcus from the infected tonsils in the cow and dog that had ulcer. The streptococcus was demonstrated in, and isolated from, experimentally produced ulcers when other tissues were sterile, and produced ulcer on reinjection. Specific localizing powers were retained for seven and one-half years in two of three strains preserved in ascites-glucose-agar shake cultures, layered with oil. Rosenow asserts that results such as these have not been obtained with streptococci of similar morphology from sources other than ulcer. Ulcer of the stomach in animals, as in man, is apparently often due to localized blood borne infection by streptococci having selective affinity for the mucous membrane or other parts of the stomach.

Journal of Metabolic Research, Morristown, N. J.

2: 401-545 (Oct.) 1922

Feeding Experiments on Rats with Plants at Different Stages of Development. I. Experiments with Corn. B. Harrow and F. Krasnow, New York.—p. 401.
*Studies of Thyroid Apparatus. XI. Effect of Thyroparathyroidectomy on Reproduction in Albino Rat. F. S. Hammett, Philadelphia.—p. 417.
*Treatment of Arterial Hypertension. F. M. Allen and J. W. Sherrill, Morristown, N. J.—p. 429.

Effect of Thyroparathroidectomy on Reproduction.—Studies have been made by Hammett of the reproductive ability of thyroidless albino rats. He found that conception occurred when completely thyroidectomized males were mated with completely thyroidectomized females; when partially thyroidectomized males were mated with completely thyroidectomized females, and when completely thyroidectomized males were mated with partially thyroidectomized females. When the thyroid apparatus was removed from young rats 45 or 56 days of age, there was no apparent inhibition of function of the internal secretion of the gonads (stimulation to development of the secondary sexual characteristics, stimulation to sexual activity, preparation of the uterine mucosa for nidation). The processes of reproduction concerned in the formation, maturation and discharge of the gametes were apparently disturbed by the loss or deficiency of the thyroid secretion, as were the reproductive processes subsequent to gonadal participation. This is shown by the increased sterility, greater age at breeding, high birth mortality, high mortality during and after weaning, the smaller number of rats in the litters, and the failure of the rats to thrive during the nursing period as do the young of normal mothers. From these results and from the point of view of comparative physiology it is concluded that the disturbances in reproductive ability following the loss of or a deficiency in the thyroid function are not due to any particular effect on the endocrine functions of the gonads of either sex or to the lack of a specific influence of the thyroid on the processes of reproduction subsequent to fertilization, but that they are the result of the general lowering of the anabolic level of the organism due to the lack of the specific stimulus to metabolism supplied by the thyroid, which results in a condition of partial physiologic inanition.

Sodium Chlorid Treatment of Hypertension.—Allen and Sherrill describe 180 severe cases of hypertension treated by close restriction of the sodium chlorid intake, for periods from one month to three years. Fully normal blood pressure was restored in only thirty-four cases (18.9 per cent.). In seventy-five other cases (41.9 per cent.) the relief of hypertension and other symptoms was sufficient to be regarded as a disinct therapeutic success. Transitory benefit, followed by relapse or death after several months, was obtained in sixteen cases (8.9 per cent.). Complete failure of treatment was encountered in fifty-five cases (30.5 per cent.). The total mortality for the four year period was twenty-five (13.8 per cent.), with no appreciable difference between cases of long and short duration, as success or failure is determined by the character of the case rather than by a time element. Incomplete and unsuccessful results are believed to be due to organic changes which cannot be removed by a treatment based only on the principle of functional rest. In successful cases not only are symptoms relieved but the progressiveness is arrested, so far as the present duration of observations can decide. The chief requirement for success, which needs emphasis above everything else in the use of this treatment, is that sufficiently strict salt privation must be carried out for a sufficient length of time. Facts are presented to show that the therapeutic results described are not due to physical or psychic rest, protein restriction, or general undernutrition. Chlorid restriction has acted favorably on the serious accompaniments of hypertension, such as cardiac failure, incipient pulmonary edema, and vascular crises, including to some extent angina pectoris. The authors believe it to be the best treatment for eclampsia in the broad sense, though in the puerperal form an active toxic process, comparable to that in acute nephritis, may seriously limit the possibilities of any dietetic treatment. With due allowance for other possible causes and treatments, these observations create the impression that sodium chlorid is the most important direct factor in nephritic retinitis, either with or without hypertension, and the arrest of this process by salt privation is highly important practically and theoretically. It appears rational that sodium chlorid, as the principal osmotic regulator of the body, should play an important part in such phenomena. Clinical experience supports the view that chlorid restriction acts powerfully not only in relieving immediate symptoms but also in checking the progressiveness of the condition.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

17: 1-112 (April) 1923

Case of Creeping Eruption in European in Gold Coast. J. F. Corson.—p. 1.
Depth, and Larvae and Pupae of Stegomyia Fasciata, F. J. W. S. Macfie.—p. 5.
Note on Action of Lithium Chlorid on Mosquito Larvae. J. W. S. Macfie.—p. 9.
Malaria in Chimpanzees in Sierra Leone. S. Adler.—p. 13.
New and Old Observations on Ceratopogonine Midges Attacking Other Insects. F. W. Edwards.—p. 19.
Strongylid Larvae in Horse, Especially Those of Cylicostomum. J. E. W. Ihle and G. J. Van Oordt.—p. 31.
Avian Cestodes from New Guinea. II. Cestodes from Casuariformes. A. Kotlan.—p. 47.
Id. III. Cestodes from Galliformes. A. Kotlan.—p. 59.
Anopheles of Myzorhynchus Group (Anopheles amazonicus Sp. N.) from South America. S. R. Christophers.—p. 71.
*Etiology of Blackwater Fever. B. Blacklock.—p. 79.
New Species and New Variety of Culex from Belgian Congo. A. M. Evans.—p. 89.
Report on Sleeping Sickness in Eket District, Southern Nigeria. R. W. Orpen.—p. 93.
Culicidae in Venezuela; Descriptions of New Species. III. A. M. Evans.—p. 101.

Blackwater Fever Not Caused by Parasite.—The existence of a parasitic cause of blackwater fever has been frequently suggested but experimental human inoculation, with blood from a severe case of blackwater fever which ended fatally, Blacklock says, elicited no evidence in favor of the existence of such a parasite after an observation period of two months.

British Medical Journal, London

1: 747-794 (May 5) 1923

*Cancer of Breast. C. Rowntree.—p. 747.
Blood Transfusion. E. F. Skinner.—p. 750.
*Composition of Gases in Artificial Pneumothorax. L. Hill and J. A. Campbell.—p. 752.
Sterilization of Unfit. R. A. Gibbons.—p. 754.
Miners' Nystagmus. A. S. Percival.—p. 757.
*Posterior Gravity Drainage in Empyema. J. O'Conor.—p. 758.

Early Symptom of Breast Cancer.—The symptom which Rowntree puts first, and a long way first, in diagnostic importance, is adhesions between the growth and the skin overlying it—not the coarse and obvious infiltration met with in advanced cases, but a much more delicate involvement, resulting in a faint dimpling of the skin which is often of so slight a degree that it may only be visible after careful examination in suitable conditions of light. In its earliest stages, it can be made to appear by grasping the breast on each side of the suspicious nodule and trying to push the skin away from the tumor. By then looking along the surface of the breast it may be possible to perceive slight irregularity in the contour not hitherto apparent. If this sign be evident—and it nearly always is when carefully looked for—a definite diagnosis of malignancy may safely be made with the utmost confidence, irrespective of the presence or absence of retraction of the nipple, alteration in the size and shape of the breast, enlargement of glands, or any of the other classical signs of cancer. Absence of adhesion to the skin does not necessarily indicate that the tumor is benign, for the growth may be too small, or, if the breast be large and fat, the distance to the skin may be too great. Rowntree reviews, briefly, the results of treatment—surgical, radium and roentgen ray. He favors the Handley operation adapted to the individual case.

Composition of Gases in Artificial Pneumothorax.—Experimental research made on animals by Hill and Campbell, with regard to changes in composition of gases injected for the purpose of producing pneumothorax, showed that the carbon dioxid percentage in the gases of pneumothorax appears to approximate very rapidly to that of the blood bathing the compressed lung. The volume of gas introduced in carrying out artificial pneumothorax may thus be increased at first, but not more than about 6 per cent. The oxygen percentage in the gases of the pneumothorax cavity approximates very slowly to that in the tissues bounding the cavity. As nitrogen diffuses out equally, it makes little difference whether oxygen or air be used for inducing artificial pneumothorax. Pathologic fluids and tissues usually cause abnormally high percentages of carbon dioxid. Pathologic changes probably lower the oxygen content. Any leakage in the thoracic cavity lowers the carbon dioxid percentage, but increases the oxygen percentage in the imprisoned gas.

Posterior Gravity Drainage in Empyema.—O'Conor claims for his method of drainage at the posterior inferior angle, that it is based on anatomic facts, and on roentgen-ray study of the normal living thorax which demonstrated the existence of a distinct potential sulcus in the pleural cavity, between the scapular line and the vertebrae beneath the ninth and tenth ribs, formed at the junction of the parietal and diaphragmatic pleura. This, combined with the fact that these patients do not pose in bed in the prone position but invariably assume a supine slope, and that those who have a resection of a rib performed for empyema on textbook lines have a tendency to tilt the affected side upward in order to avoid pressure pain, rendered it obvious that this posterior angle was the strategic site for gravity drainage in general suppurative pleuritis. Personal experience has convinced O'Conor that the lung expands more rapidly if unhampered by having to force liquid uphill. This seat of election is ideal for an encysted empyema between lung and diaphragm, not to mention the ready ingress it affords in cases of suppurating hydatid cysts, abscess of the liver, or subdiaphragmatic abscess, which have perforated the diaphragm on their tracking to a bronchus.

China Medical Journal, Shanghai

37: 205-350 (March-April) 1923

Present Status of Insulin Therapy in Diabetes. F. C. McLean.—p. 205.
Intraperitoneal Saline Infusion. H. C. Chang.—p. 215.
Dermatology: Recent Advances in Treatment. L. F. Heimburger.—p. 220.
Statistics of Communicable Diseases Among Hospital Employees. E. Tso.—p. 226.
*Embadomonas Sinensis, Faust and Wassell, 1921. E. C. Faust.—p. 231.
Convenient Test of Autoclave Efficiency. R. M. Atwater.—p. 234.
*Cholesterol: Occurrence in Two Thyroid Cysts: Modification of Salkowski's Test. B. E. Read and F. L. Meleney.—p. 236.
Campaign Against Smallpox in Wuhu. R. E. Brown.—p. 239.
Medical Mission Policy. H. Fowler.—p. 246.

Embadomonas Intestinalis in Dysentery.—*Embadomonas intestinalis* has been found in Alexandria, Egypt, and in overseas and home service troops of the U. S. Army in New York, as well as in natives in the United States who have had no contact with imported cases. *E. sinensis* has been found only in native Chinese at Wuchang. In both instances the infection was observed in diarrheic stools or those containing *Endameba dysenteriae* or *Trichomonas hominis.* In amebic dysentery the parasite appears several days after the critical period and is found to grow more rapidly at room temperature than at body heat. However, Faust has noted particularly that it has been derived from the stool and not as a contamination from bedpan or specimen box. It seems more than likely, therefore, that the organism is not itself primarily a parasite, although large numbers of the species in the stool may give rise to diarrhea. Nevertheless, it is significant that the species occurs in patients suffering from amebic dysentery. It seems safe to assert, then, that it fits into the environment and same organic cycle as *Endameba dysenteriae.* Even in questionable cases, when the latter organism has not been demonstrated in the stool, the presence of *Embadomonas,* Faust says, may be indicative of amebic infection.

New Test for Cholesterol.—A modification of Salkowski's reaction for cholesterol is described by Read and Meleney. The material is dissolved in 4 or 5 mils of chloroform; 1 or 2 drops of glycerin are added, and then an equal volume of strong sulphuric acid. There develops in a few minutes a characteristic red color, varying according to the amount of cholesterol present, from a deep magenta to a faint pink. Compared with the test made without glycerin, there is observed a more distinct coloration of the chloroform layer; moreover, the color is developed more quickly. Strong solutions of cholesterol give a deep purple color, which on standing may greatly deepen in color and change to a deep blue. It is essential that only a drop (or two) of glycerin be added.

A larger amount, instead of clarifying the reaction, only delays or spoils the result by setting up a third layer of fluid between the chloroform layer and the strong sulphuric acid layer.

Glasgow Medical Journal

17: 209-272 (April) 1923

High Blood Pressure and Its Treatment. J. Henderson.—p. 209.
Influence of Local Anesthesia on Mortality Rate of Laryngectomy. J. Adam.—p. 219.
Surgical Diathermy in Treatment of Malignant Disease of Throat. W. S. Syme.—p. 221.
*Tendon Transplantations for Musculospiral Paralysis. G. H. Stevenson.—p. 225.
*Appendicitis: Its Diagnosis and Treatment. W. J. Moore.—p. 231.

Splint for Musculospinal Paralysis.—After discarding the metal splint which is applied immediately after operation, Stevenson applies a light papier maché splint made on a plaster cast and usually prepared before the operation. The materials for its production are ordinary brown paper and paste. It is easily made waterproof by a solution of cotton wool, the formula of which is as follows: water, 1¾ pints; liquor ammoniae (0.880 sp. gr.), 2 pints; copper carbonate, 3¾ ounces. After standing four hours or longer the copper has dissolved. One-half pint of water and the cotton wool, not wadding, 1¾ ounces, are added. The mixture is shaken frequently till the cotton wool is dissolved (about twenty-four hours).

Diagnosis and Treatment of Appendicitis.—Moore describes an incision which he makes when operating for appendicitis for which he claims that no nerves are cut, there is no traction of wound edges, there is free exposure and easy access to the peritoneal cavity, excellent for drainage, less tendency to occurrence of postoperative ventral hernia, the appendix in the majority of cases is more easily found. Easy access is given to other contents of the right side of the abdomen, if desired. There is less postoperative pain, and no structure is interfered with which would predispose to inguinal hernia. A point is taken from 1½ to 2 inches perpendicularly below McBurney's point, and a transverse incision 3 inches long is made, having its center at that point. The first incision is through skin and subcutaneous tissues. The aponeurosis of the external oblique is now incised in the same direction as the skin. The internal oblique and transversalis muscles are separated and the peritoneum is then reached.

Irish Journal of Medical Science, Dublin

14: 49-96 (April) 1923

Pernicious Anemia. J. H. Pollock.—p. 49.
*Two Cases of Paroxysmal Tachycardia. L. Abrahamson.—p. 58.
Deep Roentgen-Ray Therapy in Gynecology. G. E. Pepper.—p. 67.
*Case of Subcutaneous Traumatic Emphysema Complicating Labor. A. H. Davidson.—p. 79.

Paroxysmal Tachycardia.—One of Abrahamson's cases demonstrates a paroxysm of extrasystoles; the second case was one of paroxysm of auricular fibrillation.

Traumatic Subcutaneous Emphysema Complicating Labor.—Davidson's patient, aged 21, entered labor at full term, and reached the second stage in twelve hours. The pains during the first stage and the first part of the second stage were normal in force and character, but as the head came down on the perineum (a normal vertex), the patient bore down with frantic efforts. In a few minutes the head began to show, and then the patient's face became very markedly swollen, especially about the eyelids so that the eyes were almost closed. She complained of nothing except a little pain about her face and of not being able to see well. The swelling involved not only her face and eyelids, but also extended to the neck and chest. On palpation, there was no edema or pitting on pressure, but there was a marked sensation of crackling all over the swollen area. There was some tenderness. Next day the crackling and a slight amount of swelling was noticeable down both arms, and over the back, chest and abdomen to the level of the umbilicus. There was no dyspnea or pain in the chest, and the lungs yielded nothing in the way of physical signs. The crackling and swelling gradually disappeared, and the patient was normal at the end of eight days. No treatment was adopted.

Japan Medical World, Tokyo

3: 67-94 (April) 1923

Experimental Investigation on Passage of Hemolysin, Ferment and Drugs Into Cerebrospinal Fluid Under Normal and Pathologic Conditions of Animals. N. Kimura.—p. 67.
Metabolism of Transplanted Tumors. 1. Carbohydrate Metabolism. K. Tadenuma, S. Hotta and J. Homma.—p. 71.
*Nonacid Dysentery Bacillus. A. Tanaka.—p. 74.

Nonacid Dysentery Bacillus.—A nonacid dysentery bacillus was isolated by Tanaka almost in pure culture from the stools of two patients with typical dysentery symptoms and from three mild diarrhea cases. This organism had common characteristics, morphologically and culturally, with the other dysentery bacilli. It does not split mannit but forms indol. It resembles the Schmitz strain in the weakness of virulence against the rabbit, but it differs in sugar splitting actions (maltose and dextrin). It is highly agglutinated with the patient's serum, and weakly agglutinated with immune rabbit serums of Shiga or the other atypical strains. Immune serum of this organism agglutinates already known dysentery organisms only weakly; even when the agglutination titer of the serum is very high. A strain of dysentery bacillus isolated from a dysentery patient in Tokio in 1922, agrees with the Flexner type in sugar splitting actions, but agglutinability corresponds to Hiss' Y type. It, however, is very similar to this organism. Some of the characteristics of this organism resemble those described by Yoshida, Maruyama, Shirai and Kasai, but it differs from them in immunologic reactions.

Journal of Tropical Medicine and Hygiene, London

26: 103-118 (April 2) 1923

Castellani's Bronchospirochetosis, Pneumonic and Asthmatic Varieties; Roentgen-Ray Examination; Treatment with Intravenous Injections of Iodin. N. Farah.—p. 103.
Nervous Sequelae of Phlebotomous Fever. I. H. Lloyd.—p. 110.
Personal Experiences of Bilharzia Disease. F. G. Cawston.—p. 111.

26: 119-134 (April 16) 1923

Treatment of Bilharziasis with Antimony. J. E. R. McDonagh.—p. 119.
*"Blackwater," A Disease of Metabolism. G. R. Hall.—p. 119.
Virulence of Bacillus Metadysentericus (Castellani) in Rabbit. Its Resistance to Action of Sunlight. G. Olivi.—p. 123.

Blackwater Fever a Disease of Metabolism.—The view put forward by Hall is that hemoglobinuric fever is a disease of metabolism, and that the final stages resulting in "blackwater" are intensely influenced by any process of pyrexia coincident with it or preceding it.

Medical Journal of Australia, Sydney

1: 393-416 (April 14) 1923

Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne. S. W. Patterson.—p. 393.
Commonwealth Serum Laboratories. W. J. Penfold.—p. 396.
Microbiologic Laboratory in Relation to Problems of Research. E. W. Ferguson.—p. 400.
Bacteriologic Laboratory of University of Melbourne. R. J. Bull.—p. 403.
Pathologic Department of University of Adelaide and South Australian Government Laboratory of Pathology and Bacteriology. J. B. Cleland and L. B. Bull.—p. 404.
Physiologic Laboratories of University of Sydney. H. G. Chapman.—p. 405.
Facilities for Research in Department of Physiology and Bio-Chemistry. T. B. Robertson.—p. 407.
Physiologic Laboratory of University of Melbourne. W. A. Osborne.—p. 407.
University of Melbourne: Provision for Medical Research. H. B. Allen.—p. 408.
Research Facilities of Department of Anatomy, University of Sydney. J. I. Hunter.—p. 408.
Anatomic Department of University of Melbourne. R. J. A. Berry.—p. 409.
Pathologic Laboratory at Children's Hospital. R. Webster.—p. 411.
Laboratories of Lunacy Department of New South Wales. O. Latham.—p. 411.
Victorian Lunacy Department Pathologic Laboratories. W. A. T. Lind.—p. 412.

1: 435-462 (April 21) 1923

Further Series of Cases Closely Resembling Typhus Fever. F. S. Hone.—p. 435.
Serologic Examinations. L. B. Bull.—p. 443.
Possibilities in Transmission of Onchocerca Gibsoni. R. W. Cilento.—p. 445.
Death from Progressive Emphysema. C. G. McDonald.—p. 446.
Case of Acute Gangrenous Cholecystitis. J. M. Andrew.—p. 447.

Archives des Maladies de l'App. Digestif, Paris

13: 201-304 (March) 1923

*Influence of Sleep on Motility of Stomach. D. Daniélopolu and Carniol. —p. 201.
Insufficiency of Pylorus and Aortic Aneurysm. M. Klippel and J. Rachet.—p. 205.
*Chronic Intestinal Invagination. E. Delannoy.—p. 215.

Influence of Sleep on the Motility of the Stomach.—Daniélopolu and Carniol found in three patients with stenosis of the pylorus a complete or almost complete inhibition of movements of the stomach during sleep. When the patients were awakened, the gastric contractions started and increased progressively to the usual strength.

Chronic Intestinal Invagination.—Delannoy does not discuss the well known cardinal symptoms but points out a few minor ones. Loss in weight is usually present. Guinon wrote: "Some children, who become pale and cry without apparent reason may have chronic intussusception; we guess at appendicitis too much." The rectum should always be examined in intestinal disturbances. The anus is wide open, especially during the attack, and the invaginated "sausage" may be felt. The stool is sometimes normal and regular. The diagnosis between dysentery and intussusception is made by the microscopic and bacteriologic examination of feces and the agglutinins in the serum, or the presence of a tumor or a mass in the abdomen. The treatment is surgical. Reduction may be possible even after months. Tabulated details of forty-two cases from the literature conclude the paper.

Bulletin de l'Académie de Médecine, Paris

89: 239-284 (Feb. 20) 1923

*Acidosis from Fasting and from Diabetes. Labbé.—p. 242.
Montaigne's Philosophy Conduces to Long Life. Armaingaud.—p. 255.
Mask for Inhalation of Oxygen as Aid in Artificial Respiration. M. Nicloux and R. Legendre.—p. 267.
Intramuscular Injection of Alcohol in Treatment of Recurring Luxation of the Jaw. Sicard.—p. 271.
Influenzal Sinusitis. G. Laurens.—p. 274.
Bulbar Paralysis in Course of Acute Anterior Poliomyelitis. Rapid Recovery Under Specific Antiserum. L. Babonneix.—p. 276.
Disinfecting Soaps that Can Be Used with Sea Water. Brunet.—p. 280.

Essential Difference Between the Acidosis of Fasting and Diabetic Acidosis.—Labbé finds it probable that the outcome of the alimentary glycemia test depends on the rapidity of absorption of the test substances used. It is not a test of the utilization of carbohydrates. Acidosis of diabetes is a much more complex phenomenon than the acidosis of fasting, and is characterized by the abundance of acetone bodies and other organic acids excreted. Other discrepancies between the findings of himself and others he ascribes to defective technic, saying that Van Slyke's method has revealed the actual high figures. Forssner's severe acidosis after a diet containing little carbohydrate and much fat, he ascribes to indigestion from such a "terrible" diet as 306 gm. of fat, 163 gm. of protein and 300 of Bordeaux wine, the whole equivalent to 3,650 calories. The twenty-first day he eliminated 42.8 gm. of acetone bodies and some albumin, but Labbé insists that the disturbances were not from the diet, but from indigestion. He fails to see any essential difference between the acidosis of fasting and of a diet with preponderance of fats.

Journal d'Urologie, Paris

15: 161-248 (March) 1923

*Movable Kidney. G. Potel and P. Cordier.—p. 161.
*Alternating Hermaphrodism. K. Sand.—p. 181.
Perinephric Abscess. X. Delore and C. Dunet.—p. 195.
Two Ureters in a Tuberculous Kidney. A. Giuliani.—p. 197.
*Some Minor Points in Treatment of Gonorrhea. J. Janet.—p. 201.

Movable Kidney.—Embryology explains why the right kidney is movable so much more frequently than the left.

Alternating Sex Glands.—Sand's description of a case of true hermaphrodism was mentioned when published elsewhere (Oct. 14, 1922, p. 1374). Brought up as a boy, the child at the age of 10 seemed to be developing feminine characteristics and tastes, and Sand discusses what should be done in such a case: a testis on one side and an ovary on the other.

Minor Points in Treatment of Gonorrhea.—Janet regards a series of six injections of a 20 per cent. solution of protargin strong in three days as the ideal abortive for gonorrhea. After each injection he introduces a protargin-cocoa butter pencil, pushing it up to the bulb. The failure of abortive treatment is often due to gonococci lurking in the mucous crypts.

Paris Médical

13: 241-268 (March 17) 1923

Dermatology in 1923. G. Milian and L. Brodier.—p. 241.
*Sporotrichoid Tuberculous "Gummas." J. Nicolas et al.—p. 245.
Mycotic Eczema and Intertrigo. G. Petges.—p. 249.
*The Nature of Eczema. B. Bloch.—p. 251.
*Epidermal Mycosis Due to Yeasts. G. Petges.—p. 256.
*Etiology of Herpes. E. Rivalier.—p. 257.
*Treatment of Eczema. G. Sauphar.—p. 262.

Sporotrichoid Tuberculous "Gumma" Without Adenopathy.—Nicolas, Gaté and Dupasquier are of the opinion that before the existence of sporotrichosis was known, many cases were classified as tuberculous; now there is a tendency to think of it in every case of multiple cutaneous gumma, especially when adenopathy, so long considered indispensable evidence of tuberculosis, is absent. Their researches show that tuberculosis may cause multiple gummas, without adenopathy, and with a good general condition of health, thus increasing the difficulties of dermatologic diagnosis. The lesions in their patients simulated sporotrichosis. The existence or absence of adenopathy with gummas does not indicate nature of the lesion. Inconstant in sporotrichosis, it may be absent in certain cases of tuberculosis, while a syphilitic gumma may be accompanied by serious glandular lesions. In the cases they examined, the Wassermann reaction was negative; tuberculin elicited positive reactions, but the streptothrix could never be cultivated from the pus.

Nature and Treatment of Eczema.—Bloch says that to ascribe eczema to arthritism, metabolic disturbances, etc., is only to conceal our ignorance. Nothing is known about the relations of eczema to metabolic disturbances, which include nearly all internal diseases. Persons affected with eczema are frequently free from other pathologic stigmas. Of a number of individuals in the same trade and thus exposed to the same external conditions, liable to induce eczema, only a small proportion will develop it. The individual factor is the important one. Bloch has experimented with 200 eczema patients and 500 normal subjects. The substances tested were turpentine, mercuric chlorid, arnica, quinin, iodoform and formaldehyd which were left on the skin for twenty-four hours. In normals, an inflammatory reaction followed in 5 per cent., and in the eczema patients in 50 per cent. He asks if eczema may not be an anaphylactic phenomenon, localized in the skin. Theoretically there are three methods of treating eczema: removing the antigen or toxic substance; desensitization; transforming the hypersensitive cell complex. For the last, we have arsenic and the roentgen rays, and he declares that these are indispensable in treatment of eczema.

Epidermal Mycosis Due to Yeast Fungus.—Petges says that the signs indicating mycotic eczema or intertrigo are those found in all cutaneous lesions due to yeast fungi, a greasy creamy discharge, early desquamation, especially around the edges of the lesions, and the presence of islets of various size around the principal lesion. These signs call for microscopic examination. He has often found mycotic lesions in diabetes.

Etiology of Herpes.—Rivalier recalls that in man herpes appears to be a recurrent disease and there is no effective immunization. In rabbits, on the other hand, experimental keratitis from inoculation with human herpes virus is followed by permanent local immunity, and, if encephalitis develops, it is followed by general immunity. No author has been able to show a keratogenetic virus in herpes zoster vesicles. Analogy between the virus of herpes and that of epidemic encephalitis is shown in descriptions of herpetic encephalitis in rabbits, and also by experimental epidemic encephalitis in the same animal, first produced by Levaditi and Harvier in 1920. The two affinities are also experimentally dissociable, and several authors agree in considering the encephalitic virus a neurotropic modification of common herpetic virus.

Treatment of Eczema.—Sauphar places eczematous persons, whose diet has previously been restricted, on a normal

diet, and says this favors the effects of local treatment. Milian has for many years been using a paste prepared from coal tar and zinc oxid, 20 gm. each and petrolatum and hydrous wool fat, 30 gm. each. This paste should be applied freely on the lesions, renewing it as often as necessary.

Presse Médicale, Paris

31: 353-360 (April 18) 1923

*Ptosis of the Duodenum. F. Ramond and G. Parturier.—p. 353.
Bismuth in Inherited Syphilis. Cajal and Spierer.—p. 354.
*Paralysis of Inferior Laryngeal Nerve. Trivas.—p. 356.

Tender Points with Ptosis of the Duodenum.—Ramond and Parturier remark that the supports of the duodenum are not so solid as we have been taught to believe. The first third follows the movement of the pylorus, and the ligament supporting the pylorus may extend down on the duodenum. With ptosis, this ligament may pull on the gallbladder. The other portions of the duodenum follow the movement of the pancreas. They discuss the tender points which aid in differentiating the various affections in this region.

Paralysis of Inferior Laryngeal Nerve.—Trivas diagnosed the complete paralysis of the inferior laryngeal nerve on one side in two cases and abductor paralysis on both sides in two other cases as traumatic neuroses. In the case described here, the left laryngeal palsy developed three days after a fall of 15 feet on the right side, without bleeding. The corneal and pharyngeal reflexes were abolished, and the sudden subsidence of the paralysis five or six months later confirmed Trivas' diagnosis of *hystéro-traumatisme*. He adds that the interval, the *phase de méditation*, of several days between the accident and the recurrent paralysis suggests its true nature.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 113-144 (Feb. 25) 1923

Vaccination Treatment in Obstetrics. R. Riss.—p. 113.
*Testis Extract in Treatment of Women. B. Zénope.—p. 119.
Ovarian Cancer After Roentgen-Ray Treatment. Grosse.—p. 125.

Extract of Testes in Gynecology.—Zénope, describing its use in twelve cases, says that testis extract treatment is indicated in all cases of ovarian insufficiency and to check excessive thyroid functioning. He reports the case of a woman at the menopause with insomnia, palpitation, breathlessness when walking, etc., the last symptom being the most serious. He prescribed 0.75 gm. of the extract daily, divided into three doses. She returned eight days later and reported that she could climb stairs without any difficulty and that the other symptoms had also disappeared. This form of organotherapy seems also to have a regulating action on menstruation.

Pediatria, Naples

31: 225-288 (March 1) 1923

*Brahmachari's Reaction in Infantile Leishmaniasis. I. Nasso.—p. 225.
Blood and Hemopoietic Organs in Leishmaniasis under Treatment. M. Mallardi.—p. 230.
*Roentgen Treatment and Sun Treatment in Tuberculosis. Corica.—p. 247.
Rectal Infusions of Arsphenamin in Syphilis of Children. E. Modigliani and V. Castana.—p. 258. Cont'd.

Brahmachari's Reaction in Infantile Leishmaniasis.—Nasso finds that the reaction devised in 1907 by Brahmachari for the diagnosis of leishmaniasis is also positive in other anemias. The test consists in adding two or three volumes of distilled water to the serum.

Roentgen Treatment and Sun Treatment for Tuberculous Lesions.—Corica recommends roentgen rays with climatotherapy in surgical tuberculosis of children.

Policlinico, Rome

30: 361-392 (March 19) 1923

*Fever from Occult Tuberculosis. U. Arcangeli.—p. 361. Conc'n.
Hydrocele of Tuberculous Origin. M. Segrè.—p. 368.
*Symptom of Bladder Calculus. G. Gaeta.—p. 372.

Fever from Occult Tuberculosis.—Arcangeli insists that almost all slight fevers that are ascribed to autointoxication, indigestion or other ill defined cause, are in reality traceable to overlooked tuberculosis, especially in children.

Sign of Calculus in Bladder.—Gaeta calls attention to the chilliness experienced in the penis during the paroxysms of pain from a calculus in the bladder. It seems to be a reflex vascular spasm, as evidenced by the pallor from the ischemia and the sensation of local coolness.

30: 165-220 (April 1) 1923 (Medical Section)

*Sequelae of Epidemic Encephalitis. A. Borgherini.—p. 165.
*Necropsy in Case of Epidemic Encephalitis. R. Vegni.—p. 195.
*Brain Tumors. O. D'Allocco.—p. 207.

Epidemic Encephalitis.—Borgherini's extensive experience has demonstrated that the later symptoms of epidemic encephalitis are fully as grave in the cases with a mild primary phase as in those with a stormy onset. He explains the disease as an essentially chronic affection with phases of improvement deceptively suggesting complete recovery; but the virus persists in the nerve centers. The tardy manifestations are not so much sequelae as symptoms of a still active process, notwithstanding the regressive character of the special symptoms and their mutability.

Necropsy in Epidemic Encephalitis.—Vegni found evidences of acute inflammation in the locus niger region at necropsy, twenty months after subsidence of the symptoms of the primary phase of the disease. The striatal region was less involved in the inflammatory and degenerative process.

Brain Tumors.—D'Allocco compares the clinical course and necropsy findings in ten more brain tumor cases, a total of thirty thus analyzed. In one case the man recovered after an operation on the hematoma. The symptoms were misleading in the multiple tumor cases. A sarcoma in the left rolandic region was successfully removed in 1899; a decompression operation was applied in four cases, and the necropsies in many other cases showed that the tumors had offered every chance for successful extirpation. He advises operation in every case.

Revista Médica del Rosario, Argentina

13: 1-87 (Jan.) 1923

*Uremic Symptoms in Heart Disease. Clemente Alvarez.—p. 1.
*Recovery After Removal of Brain Tumor. T. Fracassi.—p. 12.
Stab Wounds of the Kidney. P. L. Mirizzi and R. Gonzalez.—p. 20.
Septic Injury of Kidney. Idem.—p. 29.
Monster with Eventration, etc. P. Ferrazini.—p. 40.

Uremic Symptoms in Heart Disease.—Alvarez comments on the variability of the urea content in the urine in asystoly and the lack of any apparent relation to the urea in the blood. In thirteen cases tabulated, with from 0.51 to 2.6 per thousand in the blood, the range in the urine was between 12.1 and 35, the total output of urine between 150 and 700 c.c. Analysis of the cases showed that the retention of urea was not due to the oliguria alone, but to disturbances in the ureosecretory function of the kidneys. The symptoms suggesting uremia were due not to the retention of urea but to the retention of chlorids. This applies particularly to the Cheyne-Stokes breathing, as this occurs even with very moderate retention of urea and even without any retention.

Recovery After Removal of Tumor in Parietal Lobe.—Fracassi's patient was a girl aged 12 who had complained of frontal headaches for nine months. They lasted for five or six hours and returned at intervals of two or three days, and were sometimes accompanied by vomiting. After the sixth week there was formication in the right side of the body with weakness and paroxysmal limping on that side. Six weeks before she entered the hospital, vision in the right eye and two weeks later in the left became impaired. Tympany in the left parietal region and pain on percussion confirmed the assumption of tumor, and the glioma was removed at a two-stage operation.

Beiträge zur klinischen Chirurgie, Tübingen

129: 1-243, 1923

*Loose Bodies in Joints. R. Sommer.—p. 1.
Cause of Köhler's Disease. M. Kappis.—p. 61.
Etiology of Stieda's Fracture. M. P. Schüller and S. Weil.—p. 71.
Surgical Tuberculosis in East Prussia, 1911-1920. H. Käfer.—p. 78.
*Histologic Blood Examination in Surgery. K. Bringmann.—p. 99.
*Cancer on Soil Modified by Actinomycosis. N. v. Hedry.—p. 157.
*Reverdin-Halsted Grafts on Granulating Surfaces. K. Schläpfer.—p. 162.
Importance of Anaerobic Streptococci for Appendicitis. H. Brütt.—p. 175.
*Rectopexy by Kümmell's Method. D. Frank.—p. 186.

Experimental Research on Pointed Bullets. Bircher and Berger.—p. 193.
*Periarterial Sympathectomy in Treatment of Peripheral Roentgen Ulcers. Gundermann.—p. 231.

Loose Bodies in Joints.—In only seven of Sommer's twelve cases was there a history of trauma, but some contusion, possibly too slight to be noted, had probably occurred in all. Repair of the more or less injured cartilage had entailed the casting off of the injured cartilage or bone tissue. This aseptic regeneration process has been called osteochondritis dissecans, but there were no signs of inflammation in his cases.

Surgical Import of Histologic Findings in the Blood.—Bringmann says that in addition to determining the hemoglobin, color index and differential count, and examining stained and unstained specimens, the platelet count and the "thick drop" findings (to detect the efforts at regeneration) should also be recorded in every thorough examination of the blood. He presents, for ready reference, the histologic blood picture of the conditions that confront the surgeon, and their interpretation. Four of the fifty-eight pages are devoted to the eosinophils.

Cancer in Actinomycotic Lesions.—In two cases the fungus, entering by a cavity in a tooth, had induced a lesion in the lower jaw and cheek. The microscope revealed cancer in a fragment excised from each.

Transplantation of Skin on Granulating Wounds.—Schläpfer describes, with four illustrations, the Reverdin grafts as modified by Halsted. He extols the method as prompt and reliable. The raw area heals over with an elastic, resistant skin, even after crushing wounds and roentgen burns.

Rectal Prolapse.—Frank relates that in twelve cases Kümmell has corrected prolapse of the rectum by fixation to the anterior longitudinal ligament of the spine. Access is through the perineum, and this simple method cures the prolapse permanently, even when extensive, and the elasticity of the sphincter is soon restored.

Sympathectomy in Treatment of Roentgen Ulcers.—Gundermann was impressed with the rapid healing in two cases of ulcer of the foot after periarterial sympathectomy. They had persisted for years after injury of the nerve. This success impelled him to apply the treatment in two cases of rebellious roentgen ulcer of the dorsum of the hand, and in a large roentgen ulcer in the elbow region. In all three the ulcer had persisted for one or more years. Wherever healing was not hampered by the presence of necrotic tissue, the surface was soon covered with vigorous granulations. The pain subsided as if by magic. In one case the swollen inflamed aspect of the upper arm returned to normal within twenty-four hours, but this was followed at once by profuse suppuration requiring puncture to release the fluid pus. It is evident from such experience, he says, that both vasodilating and vasoconstricting nerves accompany the sensory bundles of the spinal nerves to the vessels. The vasodilators seem to be more resistant than the constrictors. Venous hyperemia is not the consequence of inflammatory transudation but one of its main causes. Periarterial sympathectomy breaks up the deadlock of the vasoconstrictors and thus transforms conditions.

Deutsche medizinische Wochenschrift, Berlin

49: 303-334 (March 9) 1923

*Seroreaction in Tuberculosis. A. v. Wassermann.—p. 303.
Etiology of Rheumatic Polyarthritis. E. Keeser.—p. 308.
Frambesia and Syphilis. A. Müller.—p. 309.
*Titration in Sachs-Georgi and Wassermann Reactions. Sparmann.—p. 311.
Intestinal Cartridge Without Electromagnet for Examination of Micro-Organisms. van der Reis.—p. 312.
Our Blood Transfusions and the American Method of Grouping. G. C. J. Scholten.—p. 314.
Hypertrophy of Prostate. Voelcker.—p. 315. Cont'n.
Payr's Pepsin-Iodin Solution for Softening of Scars. W. Falb.—p. 317.
*Toxicity of Tobacco Smoke. R. Heinz.—p. 318.
Suicide by Fluor Sodium Silicate. G. Kurtzahn.—p. 319.
Protein Injections in Atrophic Infants. E. Kovács.—p. 320.
Dermatologic Diagnosis. M. Joseph.—p. 321. Cont'n.

Experimental Basis for Specific Reaction for Tuberculosis.—This paper was reviewed editorially on page 1456.

Titration with Variable Amounts of Serum in Sachs-Georgi and Wassermann Reactions.—Sparmann finds that some serums give positive reactions in low concentrations, and negative with the usual amounts. The use of stronger concentrations is advantageous in seronegative syphilis, in approaching relapses, and in the course of treatment. The Wassermann is superior in both ways to the Sachs-Georgi reaction, but the latter is of great value in anticomplementary serums.

Toxicity of Tobacco Smoke, Especially Cigaret Smoke.—Heinz reports on Bogner's experiments on smoking. It was found that with inhalation of the smoke, eight times more nicotin was absorbed than in smoking without inhaling.

49: 369-400 (March 23) 1923

Pathology and Treatment of Kidney Disease. I. F. Umber.—p. 369.
Exophthalmic Goiter. II. Goldscheider.—p. 371. Discussion.
*Bilirubin in Serum in Gallbladder Disease. Strauss and Sandherr.—p. 376.
*Epinephrin Test in Thyroid Disease. Csépai et al.—p. 379.
Quinin Treatment of Pneumonia. M. John.—p. 380.
Surgical Treatment of Dorsal Luxation of Two Metacarpophalangeal Joints. Sonntag.—p. 382.
Torsion of Testis. H. Weitz.—p. 384.
Hypernephroma After Accident. Rückart.—p. 384.
Abscess After Ruptured Empyema of Gallbladder. Schenk.—p. 385.
Acute Occlusion of Intestines in Infants. A. Reiche.—p. 386.
*Sense of Smell as Aid in Diagnosis. A. Niedermeyer.—p. 387.
Prophylactics Against Gonorrhea. P. Schwarz.—p. 388.
The "Conscientious Objector" in Social Hygiene. C. Flügge.—p. 389.
Etiology of Smallpox. v. Niessen.—p. 389. Reply. Gins.—p. 390.
Medicine in the History of Civilization. Vorwahl.—p. 390.

Clinical Significance of Bilirubin Determination in Serum with Regard to Diseases of Gallbladder.—Strauss and Sandherr in chronic affections of the gallbladder always found an increased amount of bilirubin in the blood during the attacks. In the intervals, 70 per cent. had a normal bilirubinemia. Fresh cases of cholecystitis only exceptionally gave positive results.

Determination of Epinephrin Sensibility in Diseases of Thyroid Gland.—Csépai, Fornet and Tóth use the reading of the blood pressure only after intravenous injections of epinephrin. With these precautions, they find the test valuable in diagnosis and prognosis of affections of the thyroid gland.

Diagnosis by Smelling.—Niedermeyer recalls the cadaverous odor, which is almost always a sign of imminent death. It may be the reason why a dog sometimes avoids his master, before a physician can make the prognosis. In two cases of intra-uterine fetal death, the odor was present in the breath of the mother until the fetus was removed.

Jahrbuch für Kinderheilkunde, Berlin

101: 127-250 (March) 1923

*Proteins and Bacterial Fermentation. R. Rühle.—p. 127.
Acidity and Buffer Action of Feces. K. Scheer and F. Müller.—p. 143.
Acidosis and Hyperglycemia in the Toxic Syndromes of Infants. S. Ederer and E. Kramer.—p. 159.
Epidemic Encephalitis in Early Infancy. F. Rund.—p. 175.
Icterus of the New-Born. H. L. Ratnoff.—p. 187.
Scarlet Fever After Lye Poisoning. J. Von Petheö.—p. 197.
*Anatomical Findings in Nutritional Disturbances of Infants. E. Stephani.—p. 201.
Morphologic Variations of Eggs of Ascaris. D. Lebedev.—p. 221.
Comment on Zeissler and Käckell: Bacteriology of Infant's Feces. A. Adam.—p. 225.
Reply to Cahn and Steiner: On Resorption and Action of Epinephrin. K. Csépai.—p. 227.
Reply. R. Cahn and B. Steiner.—p. 229.
Gummatous Syphilis in Infants. J. Ambrus.—p. 231.

Proteins and Bacterial Fermentation.—Rühle confirms Kayser's and Blühdorn's observation of increased formation of acid in the presence of proteins. The figures are still higher if products of peptic tryptic digestion are used. The stronger fermentation is simply due to the physicochemical binding of acid with the proteins. This enables the microorganisms to continue the fermentation, and produce more titratable acid, but for the same reason this acid does not hurt the mucosa of the intestines. Therefore proteins have no harmful effects in intestinal fermentation.

Anatomic Findings in Nutritional Disturbances of Infants.—Stephani reports the results of 121 necropsies on children

with nutritional disturbances. In the acute forms she found almost constantly a severe fatty degeneration of the liver with loss of fat in the cortex of the suprarenal capsules. The chronic cases did not have fatty degeneration of the liver, but had large deposits of hemosiderin in the spleen and a little less in the liver.

Klinische Wochenschrift, Berlin

2: 525-572 (March 19) 1923

*Action of Protein Treatment. H. Vollmer.—p. 529.
Comparison of Bilirubin Determinations with Herzfeld's and Bergh's Methods. L. Frigyér.—p. 532.
Indications and Results of Radical Phrenicotomy. H. Fischer.—p. 535.
Anesthesia with Dichlormethane in Gynecology and Obstetrics. P. Schumacher.—p. 536.
Changes in Shape of Stomach with Stenoses of Intestines. Markó.—p. 538.
*Bile Acids in Fluids in Icterus. Borchardt.—p. 541.
Xanthoma or Xanthomatous Degeneration of Skin? Urbach.—p. 542.
Phenomena of Growth in Micro-Organisms. F. W. Oelze.—p. 545.
Traumatic Parthenogenesis. Haberlandt and Levy.—p. 547. Reply. Voss.—p. 547.
*Relation Between Blood Viscosity and Corpuscles. Drossbach.—p. 548.
Experiments on Acquired Resistance of Bacilli. Jungeblut.—p. 549.
Diagnosis Between Tumor of Lungs and Chronic Pneumonia. Deist.—p. 550.
Orthopedics of Jaws in Relation to Whole Organism. Weber.—p. 552.
Rachitis in Large Cities and Significance. Engel.—p. 554.

Action of Protein Treatment on Intermediary Metabolism and Glycemia.—Vollmer finds that injections of proteins injure at first the organism and inhibit oxidative processes in the cells, which leads to an increased acidity of urine. The stimulative stage is secondary, and due to the products of disintegration of the own cells of the organism. Specific stimulating bodies, like tuberculin, have not only their specific action, but also a nonspecific influence on metabolism identical with other proteins. Protein treatment inhibits the hyperglycemic action of epinephrin. He attributes this in accordance with some experiments of György and Herzberg to the "alkalotic" change of the metabolism.

Bile Acids in Urine, Blood, Duodenal and Cerebrospinal Fluid in Icterus.—Borchardt examined 200 cases of icterus and was never able to find in mechanical icterus a dissociation between the elimination of bilirubin and bile salts. He attributes different findings to the use of Hay's test, while he prefers the more sensitive stalagmometry. The hemolytic forms of icterus were always dissociated. The threshold for excretion of bile salts is low and the serum contains very rarely larger quantities of them. The patients with drops of serum smaller than 90 c.mm. died. The duodenal contents from healthy persons formed droplets of the maximal size of 62.5 to 69.5 c.mm. Higher figures (up to 82.7 c.mm.) were found only in persons with impaired liver function, and are due to the absence of the surface-active bile salts. The cerebrospinal fluid contains bilirubin only in cases with affections of vessels or hemorrhages. He was not able to find any bile salt in cerebrospinal fluids.

Relation Between Blood Viscosity and Blood Corpuscles and the Action of Caffein on it.—Drossbach found with the hematocrit method that caffein increases the volume of the erythrocytes. It increased the viscosity of blood if he used a low pressure to determine it.

Medizinische Klinik, Berlin

19: 265-298 (March 4) 1923

Tumors of Bladder. R. Paschkis.—p. 265.
Speed of Sedimentation of Erythrocytes and Its Analogy with Nonspecific Agglutination of Micro-Organisms. J. Vorschütz.—p. 269.
*Prophylactic Immunization of Pregnant Women Against Streptococci. Louros.—p. 272.
Collective Inquiry on Eclampsia.—p. 274. Cont'n.
Generalized Vaccinia After Spontaneous Infection. Althoff.—p. 275.
Blood Pressure in Irradiation with Artificial Sunlight. B. Günther.—p. 276.
Treatment of Nervous Breakdowns with Regard to the Blood Corpuscles. V. Kafka.—p. 278.
Use of Kathodic Tubes for Demonstrations of Heart Sounds. L. Jacobsohn.—p. 280.
Survey of Physiology and Pathology of the Organs of Digestion. W. Wolff.—p. 286.

Prophylactic Immunization of Pregnant Women Against Streptococci.—Louros injects twenty and ten days before labor 250 millions and 500 millions of streptococci. Women who come to the clinic too late for this, receive 50 c.c. of antistreptococcus serum. No case of puerperal generalized infection occurred in 2,500 women thus immunized at Athens, notwithstanding the bad hygienic conditions at the clinic.

19: 371-406 (March 25) 1923

Diagnostic and Therapeutic Progress in Foreign Bodies in Esophagus. von Eicken.—p. 371.
*Responsibility for Ischemic Contracture. Schubert.—p. 373.
Clinic and Diagnosis of Hodgkin's Disease. W. Weis.—p. 375.
*Treatment of Chronic Gastric and Duodenal Ulcers. Holler.—p. 379.
*Gout in Etiology of Neuralgia and Myalgia. W. Alexander.—p. 380.
Case of Malignant Syphilis Treated with Extracts of Syphilitic Organs. A. Perutz.—p. 383.
Treatment of Lobar Pneumonia with Franke's Digitalis-Salicylate-Antipyrin Mixture. H. Hoffmann.—p. 385.
Rupture of Sigmoid During a Curettement. E. Parsch.—p. 386.
Colloidal Reactions in Cerebrospinal Fluid with Berlin Blue and Indigo. P. Kirchberg.—p. 387.
"Dold Reaction." Sachs and Georgi.—p. 388. Reply. Dold.—p. 388.
Fracture of Neck of Femur and Tabes Mistaken for Simple Contusion. Engel.—p. 389.
Survey on New Results of Surgery. O. Nordmann.—p. 392.

Responsibility of Physician for Ischemic Contracture.—Schubert emphasizes the significance of simultaneous lesion of artery and nerve in the pathogenesis of ischemic contracture. A circular cast may increase the existing circulatory trouble. The contracture develops very quickly—within six or eight hours—so that even an early removal of the dressing does not help. Yet the physician cannot be held responsible if the dressing was applied correctly and removed early. In cases of fractures, especially in supracondylar fractures of the humerus, circular dressing is contraindicated if pulsation is absent.

Treatment of Chronic Gastric and Duodenal Ulcers.—Holler found changes in the medulla oblongata in two cases of ulcers. He recommends parenteral protein treatment in ulcers, and found that, unlike normal persons, disappearance of hemoclastic crises occurs. Large amounts of alkali are beneficial.

Gout in Etiology of Neuralgia and Myalgia.—Alexander finds myalgia frequently in gout, but believes that neuritis is practically never due to gout.

Monatsschrift für Kinderheilkunde, Leipzig

24: 769-848 (March) 1923

*Further Signs of Anal Fissure. K. Svehla.—p. 769.
Significance of Presence of Colon Bacilli in Stomach of Infants. W. Grävinghoff.—p. 784.
Colon Bacilli Agglutinins. E. Kramár.—p. 799.
Pathogenesis of Köhler's Disease. P. Caffier.—p. 810.
Juvenile Delinquency. K. Planner.—p. 813.

Signs of Anal Fissure.—Svehla adds new signs to the coxalgia he described before: loss of weight, pain, especially in the liver and cecal region, and diarrhea alternating with constipation; psychic irritability may also be due to an anal fissure. He illustrates, with several cases, the importance of examining the rectum even if the symptoms seem to have no connection with it. The pathognomonic sign is severe pain on digital examination and pulling on the rectal mucosa. He treats with calomel (three times at one hour intervals), giving 0.01 gm. per year and dose, but never more than 0.03 at one dose. If the bowels do not move after the third administration, an enema should be given. Then a suppository containing 0.01 gm. cocain is given and is repeated the next morning and evening without regard to defecation. More than ten suppositories are rarely needed.

Münchener medizinische Wochenschrift, Munich

70: 353-384 (March 23) 1923

Affections of Adnexa and Appendicitis. M. Flesch.—p. 353.
*Titration of Antitoxic Serums. R. Kraus and Rocha Botelho.—p. 354.
Meinicke's Reaction in Diagnosis of Syphilis. Y. Huang.—p. 356.
*Tubercle Bacilli in Feces. K. Nüssel.—p. 357.
Psychogenous Disturbance of Defecation with Erroneous Roentgen Diagnosis of Organic Stenosis. Tscherning.—p. 358.
Epidemic of Necrotizing Erysipelas. Hoesch.—p. 359.
Varicella and Ultraviolet Rays. A. Reiche.—p. 360.
Treatment of Breech Presentations in Old Primiparas. F. Benzel.—p. 361.
Etiology of Köhler's Disease. Dürig.—p. 362.
Fever in Toxic Dermatitis. F. Jacoby.—p. 362.
Goldsol Reaction. W. Lohmann.—p. 363.

"Localization of Cervix in Gynecologic Irradiation." W. Simon.—p. 363.
Life, Stimulus, Disease and Inflammation. K. E. Ranke.—p. 363. Conc'n.
Parasitic Affections of Skin. L. v. Zumbusch.—p. 368.
Method of Teaching Nurses. J. E. Kayser-Petersen.—p. 370.

Titration of the Avidity of Antitoxic Serums Against Snake Venoms.—Kraus' and Botelho's experiments on snake venom antitoxins confirmed the importance of the quality of antitoxin. The number of antitoxic units is not the only decisive factor, especially in snake bites, when the action must be rapid. Differences between the action of antitoxins in vitro and in the living body are best explained by assuming a different avidity (speed of combining with toxins) of the antitoxins.

Tubercle Bacilli in Feces.—Nüssel examined simple smears and preparations of feces. Patients, who had tubercle bacilli in the sputum, also had them in the stools. If no sputum is available, the stool should be examined.

Wiener klinische Wochenschrift, Vienna

36: 213-230 (March 22) 1923

*Treatment and Prevention of Goiter. B. Breitner.—p. 213.
Splanchnic Anesthesia. E. Kutscha-Lissberg.—p. 216.
*Agglutination of Dysentery Bacilli in Children. Widowitz.—p. 220.
Hypercholesterolemias. I. Baráth.—p. 221.
Statistics of Trachoma. H. Wassing.—p. 223.

Indications for Surgical Treatment and Prevention of Goiter.—Breitner finds that the mere size of a goiter is rarely an absolute indication for surgical treatment; ptosis of the gland is more important. It may be necessary to transplant a substernal remnant of the gland under the skin or into the subperitoneum. Roentgenologically demonstrated deviation or compression of the trachea is an absolute indication. Tracheomalacia caused by a goiter requires, in the average, six months before it is cured. Blauel's and Reich's experiments demonstrated the significance of stenosis of the trachea (lack of oxygen) in the formation of colloid goiters. Treatment with iodids mobilizes the secretion and thus diminishes the volume of the gland. Exophthalmic goiter in a patient who has formerly had a simple goiter, is suitable for operation. When combined with persistent thymus, the indications are not clear. It may be, that other endocrine glands are primarily affected. Resection of the thyroid may ameliorate the condition and removes the compression of trachea. Thymectomy may also be considered. The surgical treatment of small, vascular goiters, without affection of the trachea, is difficult and dangerous. Roentgen rays are indicated here. He adds that a sojourn in localities where endemic goiter is prevalent sometimes has a beneficial influence on exophthalmic goiter. The preventive treatment of goiters with iodids, recommended thirty years ago by Wagner-Jauregg, is almost generally accepted.

Agglutination of Dysentery Bacilli in Children.—Widowitz studied children with dysentery in a hospital. He finds that formation of agglutinins indicates a present or previous infection. The so-called normal agglutinins are specific remnants of real agglutinins. He believes that coagglutination is also due to infections with the germs.

Zeitschrift für Kinderheilkunde, Berlin

35: 67-126 (March 18) 1923

Body Frame and State of Nutrition in Their Influence on the Index of Fulness of Body. E. Helmreich and K. Kassowitz.—p. 67.
Noma. P. Kuhn.—p. 79.
*Digestion Leukocytosis and Leukopenia in Children. J. C. Schippers and C. de Lange.—p. 95.
Determination of Pelidisi in Normal Infants and Children. S. Newman.—p. 102.
Three Cases of Acute Appendicitis in School Children. Rheindorf.—p. 105.
*Eczema Death and Myocarditis. I. Bernheim-Karrer.—p. 120.

Digestion Leukocytosis and Leukopenia in Children.—Schippers and de Lange find that the leukocyte count in healthy children and babies is subject to so many influences, that it is impossible to give any rule. It is impossible in medicine to rely on one sign; only marked differences are of value.

Eczema Death and Myocarditis.—Bernheim-Karrer seventeen years ago found interstitial myocarditis in two cases of eczema. He reports another case history of a child, aged 13 months, suffering from an extensive suppurating eczema. The child died suddenly. Myocarditis, with predominance of round cell infiltration, was the cause of death.

Zeitschrift für Tuberkulose, Leipzig

37: 401-466 (March) 1923

Ways of Tuberculous Infection. H. Beitzke.—p. 401.
Sanitariums and Fight Against Tuberculosis. G. Schröder.—p. 413.
*Diazo and Urochromogen Reactions in Tuberculosis. K. Lemmens.—p. 423.
"Problem of Tuberculosis." G. Schellenberg.—p. 426.
Some Problems of Tuberculosis. H. Rieckenberg.—p. 430.

Clinical and Prognostic Significance of Diazo and Urochromogen Reactions in Pulmonary Tuberculosis.—Lemmens examined repeatedly the urine of 328 tuberculous patients, using Ehrlich's diazo and Weiss' permanganate tests. In twelve very severe exudative cases, both reactions were present. Weiss' reaction was constantly present in thirty-two other progressive cases. It is thus preferable to the diazo test. If the diazo is negative and Weiss' test is positive, this may indicate severity. Both tests negative, indicates a good prognosis. Sometimes the reaction becomes negative a few days before death.

Zeitschrift für urologische Chirurgie, Berlin

12: 81-402 (March 29) 1923. J. Israel Festschrift

*Menstrual and Hypertonic Hematuria. H. Strauss.—p. 84.
Suppuration in Adipose Capsule of Kidney. H. Maass.—p. 90.
*Operative Treatment for Incontinence of Urine. E. Unger and F. Höring.—p. 96.
*Albuminuric Neuroretinitis and Kidney Disease. F. Umber and M. Rosenberg.—p. 100.
*Treatment of Suppurating Nephritis. Lehmann.—p. 106.
*Transudation from Tumors in Bladder. Dobrotworski.—p. 118.
*Exploratory Exposure of Kidney. G. Ekehorn.—p. 123.
Renal Hemorrhage Month After Trauma. C. Posner.—p. 153.
Reconstruction of Male Urethra. H. Joseph.—p. 158.
*Pyelotomy. M. Zondek.—p. 163.
*Recent Progress in Urology. A. Lewin.—p. 171.
Simultaneous Gallstones and Kidney Stones. F. Karewski.—p. 182.
Clinical Significance of Pus in Urine. T. Cohn.—p. 191.
Origin of Kidney Cysts. E. Holländer.—p. 202.
Nephritis Dolorosa and Calculus Anuria. W. Israel.—p. 206.
*Pyelitis or Hydronephrosis? A. Bloch.—p. 219.
Diverticulum in the Bladder. A. Bloch and P. Frank.—p. 242.
Hydronephrosis from Aberrant Vessels. C. H. Ludowigs.—p. 250.
*Ignipuncture for Cystic Kidney. E. Payr.—p. 254.
Anterior Pyelotomy. P. Rosenstein.—p. 269.
Diverticulum in the Bladder. V. Blum.—p. 290.
*Pneumoradiography of the Kidney Bed. A. Mosenthal.—p. 303.
*Elasticity of the Bladder. M. Katzenstein and M. Rosen.—p. 310.
Defect in Female Urethra. K. Franz.—p. 315.
*Chromocystoscopy. H. Janke.—p. 323.
Contractility of Kidney Pelvis and Ureter. A. Israel.—p. 328.
*Surgery of Urogenital System. H. Riese.—p. 334.
Total Removal of Bladder. E. Joseph.—p. 353.
*Diagnosis and Treatment of Calculi in the Kidneys. T. Rovsing.—p. 358.
Electrocoagulation of Bladder Tumors. E. Wossidlo.—p. 385.
*List of Israel's Publications.—p. 390.

Menstrual and Hypertonic Hematuria.—Strauss regards the painless and afebrile hematuria in a case described as vicarious menstruation. The hematuria persisted several days and returned three times in the course of nine months during two years of amenorrhea. The vasomotor system in this young woman seemed to be peculiarly unstable. In three other cases the brief hematuria was explained by the high blood pressure. In conclusion, Strauss remarks that not enough attention is paid to the agglutination of crystals in the urine as a sign of a tendency to calculus production. In one case this "clumping phenomenon" helped to distinguish cases of the oxaluric diathesis from purely alimentary oxaluria.

Operative Treatment of Incontinence of Urine.—Unger and Höring describe, with illustrations, the application of the Goebell and Stoeckel method. A vertical flap, 8 cm. long by 4 cm. wide, is cut in the muscular tissue above the symphysis. This flap is slit to form two strips and these strips are brought down toward the vagina and sutured together. They embrace the urethra and exert enough pressure to insure continence.

"Albuminuric Neuroretinitis."—If there is no acute kidney disease accompanying the neuroretinitis, then the latter signifies merely sclerosis of the minute arteries in the retina;

probably other organs are also affected. But it is not a sign of insufficiency of the kidneys. The patient may live for years. Three years was the longest survival after the first signs of neuroretinitis in the cases analyzed. In the case with the fatal arteriolosclerosis of the brain, there was only incipient sclerosis in the kidney vessels.

Conservative Operation for Suppuration in the Kidney.—In Lehmann's five cases of this kind in a recent year, he decapsulated the kidney and made a small incision in it only large enough to hold a drain. Prompt recovery followed.

Transudation Through Villous Tumors in Bladder.—The profuse transudation might mislead in diagnosis. In two cases reported the ureters had been implanted in the bowel, but the bladder continued to void large amounts of what was supposed to be urine until the absence of urea in it was noted. The fluid was not stained with the indigo carmine test.

Exploratory Exposure of Kidney Before Removing its Mate.—Ekehorn reviews his experience in this line in twenty-seven cases. He never witnessed any disadvantage from it; the nephrectomy was always done at the same sitting. The aspect of the upper ureter is always instructive in renal tuberculosis. He says the functional tests are useless in this disease.

Pyelotomy.—Zondek's data confirm the advantages of anterior pyelotomy even when the calculus is in a major calyx or extends to the upper ones.

Progress in Urology.—Lewin reviews the progress of the last few years in diagnosis and treatment of inflammatory affections of the bladder and kidney pelvis, exclusive of tuberculosis and syphilis. He has had excellent results from vaccine therapy in a number of cases of pure streptococcus cystitis and pyelitis, but otherwise has found vaccine therapy often disappointing. The heat applied to kill the bacteria injures their bodies to such an extent that they fail to stimulate antibody production. Little if any progress has been realized in treatment of nontuberculous ulcerating cystitis—simple ulcer of the bladder.

Chronic Pyelitis Versus Infected Hydronephrosis.—Bloch gives details of eight cases in which the clinical picture of chronic pyelitis was traced to a mechanical or dynamic obstruction to the flow of urine as the primary cause. If the obstruction is unilateral and cannot be corrected, nephrectomy may be advisable.

Polycystic Degeneration of the Kidneys.—Payr's colored illustration shows a kidney brought to the surface to be treated by ignipuncture. With the galvanocautery he pierces the cysts separately, or makes a crucial incision in the cyst with it, or cuts out the presenting portion by running the cautery around it. He has applied this treatment in five of the fourteen cases of congenital cystic kidney he has encountered. The patients were all women but three. One patient returned for repetition of the procedure so that he has applied it to date nine times. All were benefited, and all are in good condition except one patient who succumbed to the progress of a duodenal cancer. The decidedly favorable action of ignipuncture was confirmed anew by necropsy in this case.

Pneumoradiography of the Bed of the Kidney.—Mosenthal extols the simplicity and instructive findings with insufflation of oxygen to facilitate roentgen-ray examination of the kidney. It has been applied in thirty-eight cases in his service.

Elasticity of the Bladder and Kidney Pelvis.—Research in this line and a case of spontaneous rupture of the bladder are reported.

Chromocystoscopy.—Janke injected indigo carmine by the vein in 100 cases, and declares that the findings with the test are far more instructive than with the usual intramuscular technic.

Surgery of Urogenital Apparatus.—Among the operations reviewed by Riese, nine were for removal of a hypernephroma. Three of the patients are still in good health, the interval in one case in which postoperative roentgen exposures had been given, being more than five years.

Kidney Calculi.—Rovsing analyzes 716 cases of nephrolithiasis encountered in twenty-nine years. The list includes two cases of cystinuria and cystin stones. He ascribes the permanent cure after removal of the large cystin stones to the daily ingestion of 1 or 2 liters of distilled water. One patient was a woman, the other a girl, aged 4. The intervals since are nine and four years.

Israel's Works.—The list fills twelve pages, including about fifty works by Israel's pupils. His first publication appeared in 1875 and described the nervous phenomena in a case of foreign body in the pancreas.

Zentralblatt für Chirurgie, Leipzig

50: 505-552 (March 31) 1923

Heminephrectomy in Pyonephrosis of Horseshoe Kidney. W. Carl.—p. 506.
*Gangrene of Intestine as Complication of Typhus. A. Gregory.—p. 507.
Rhinoplasty with Flap from Patient's Chest. K. Steinthal.—p. 508.
The Significance, for Surgery, of Menstrual Changes in the Mammae. A. Rosenburg.—p. 510.
Tendoplasty in Paralysis of Popliteal Nerve. Birt.—p. 511.
Retrosternal Luxation of the Clavicle. Wachendorf.—p. 514.
Illumination of Operating Rooms. L. Drüner.—p. 516.
Splint for Fractured Femur. Schönbauer and Orator.—p. 518.
Rubber Protector for Trephining Operations. W. Porzelt.—p. 520.
A Two-Eyed Ligating Needle. E. Braatz.—p. 521.
An Instrument for Removing Plaster Casts. H. Knorr.—p. 522.

Gangrene of Intestine as Complication of Typhus.—Gregory observed during typhus epidemics 827 instances of surgical complications in 7,237 cases of typhus. Gangrene of the intestine was rare, fifteen cases being noted. The cause of the gangrene was necrotic thrombovasculitis, produced by the typhus virus. The ascending colon is usually first affected. The complication begins from eighteen to sixty days after onset of the typhus and follows a somewhat typical course. The seven cases in which no operation was performed ended fatally; also the cases in which operation was not done till the second stage was reached. In the two cases in which operation was done in the first stage, an artificial anus at the cecum was established. The intestinal condition cleared up, but one patient died from pneumonia; the other recovered. Gregory emphasizes: (1) after recovery from typhus, no operation that is not urgent should be performed before two months; (2) peritoneal manifestations after typhus usually point to disturbed circulation in the intestinal wall and constitute a dangerous complication, which, if left untreated, or treated conservatively, ends fatally. An artificial anus at the cecum, at the beginning of the peritoneal manifestations, may save the patient's life.

Zentralblatt für Gynäkologie, Leipzig

47: 497-544 (March 31) 1923

*Normal Total Blood Volume in Pregnancy. G. Kaboth.—p. 498.
Chondrodystrophia and Pregnancy. E. Wehefritz.—p. 503.
Compressor for Abdominal Aorta. K. Riediger.—p. 507.
Rodent Ulcer of the Vulva. F. Jess.—p. 509.
Pregnancy After Bilateral Tumors of Adnexa. E. A. Koch.—p. 514.
Symptoms of Rupture in Tubal Pregnancy. B. Herzfeld.—p. 517.
Cleansing of Surgeon's Hands and Bathing of Patients Before Operations. E. Ekstein.—p. 519.
Protein Therapy in Febrile Abortion. J. Trebing.—p. 521.

Normal Total Blood Volume in Pregnancy.—Kaboth examined 11 nonpregnant and 20 pregnant women. The total blood volume in the nonpregnant ranged between 2,805 and 4,480 gm., or from 5.21 to 7.62 per cent. of the body weight. The total blood volume of the 20 pregnant women was from 2,982 to 4,810 gm. or from 5.96 to 8.50 per cent. of the body weight of the women, after deducting the approximate weight of the fetus. The increase in the total blood volume in women is due partly to added growth of tissue. In pregnant women approaching term, whose body weight ranged between 50 and 70 kg., there was an increase of from 300 to 450 gm. of blood.

Zentralblatt für innere Medizin, Leipzig

44: 209-224 (March 31) 1923

*Mechanism of Introduction of Gastroscopic Tube. W. Sternberg.—p. 209.

Physiologic Identity of Difficulty and Danger in the Mechanism of Introducing the Gastroscopic Tube.—Sternberg applies the contrast between effort and success, as discussed by Bernard Shaw in "Cashel Byron's Profession," to the introduction of the gastroscope. Safe introduction is easy,

and vice versa. The minimum of effort required results in the maximum of effect and safety, everywhere in physiology. Both patient and physician must relax completely.

Polska Gazeta Lekarska, Lwow

1: 637-652 (Aug. 6) 1922

Influence of the Great War on Diseases of the Eye. J. Kolinski.—p. 637.
*Retroflexion of the Uterus. W. Falgowski.—p. 638. Conc'n.
*Typhus Fever. J. Grek.—p. 641. Conc'n p. 677.
*Psychical Needs of the Sick and Hospital. A. Chelmonski.—p. 650.

1: 653-668 (Aug. 13) 1922

Quantity of Cholesterol in Blood. Z. Michalski.—p. 653.
Lenticular Lenses. A. Lipka.—p. 653.
Torsion of the Spermatic Cord. H. Hilarowicz.—p. 654.
Serotherapy of Scarlatina. W. Pulawski.—p. 654.
Question of Labor in Poland. E. Artwinski.—p. 665.

1: 669-684 (Aug. 20) 1922

Congenital Bifurcation of the Inferior Part of the Digestive Tract. J. Glatzel.—p. 669.
Pathology of Blood-Producing System. M. Semeran.—p. 670. Conc'n p. 686.
Salt of Morszyn in Mouth Hygiene. H. Allerhand.—p. 675.
Typhus Fever. J. Grek.—p. 677. Conc'n.
Question of Epidemic Hospitals in Poland. A. Kuhn.—p. 682.

1: 685-700 (Aug. 27) 1922

Treatment of Appendicitis. T. Kozuchowski.—p. 685.
Treatment with Colloids and Proteins. S. Baley.—p. 690.
Teaching Oto-Laryngology in Poland. I. Szmurlo.—p. 696.

1: 701-716 (Sept. 3) 1922

Rupture of Gravid Uterus with Primary Cancer of the Cervix. W. Janusz.—p. 701.
Morphology of the Cell. M. Konopacki.—p. 703.
Provocation of Neoplasms by Irritation with Tar. L. Paszkiewicz.—p. 707.
Wire of Hypo-Needle in the Left Ventricle of the Heart. W. Czarnocki.—p. 708.
Treatment with Colloids and Proteins. W. Ziembicki, M. Selzer and S. Ruff.—p. 708. Cont'd.
Medicine and Esperanto. M. Blassberg.—p. 714.

Retroflexion of the Uterus.—Falgowski's article was summarized on page 1350.

Typhus.—Previous instalments of Grek's analysis of his experiences with typhus were reviewed on page 1111.

Psychic Needs of the Sick in Hospitals.—In this article Chelmonski is touching an interesting subject, the importance of the individual care of the sick not only physically but also psychically. To support his view of the importance of this, he cites various physiologic phenomena excited directly by the mind, such as the secretion of saliva and gastric juice from the imagination of savory food. Chelmonski reiterates the necessity for consideration of psychic influences on sick persons, especially in hospitals.

Acta Chirurgica Scandinavica, Stockholm

55: 437-631 (April 11) 1923

*Phlegmonous Enteritis. G. Bohmansson.—p. 437.
Fracture of Scaphoid Bone of Hand. A. Troell.—p. 490.
*Bleeding from Cauterized Pleural Adhesions. H. Dahlstedt.—p. 497.
*Tuberculous Epididymitis. G. Söderlund.—p. 513.
*Gastroscopy. W. Sternberg.—p. 563.
*Coxa Plana. H. Waldenström.—p. 577.
Tuberculosis in Kidneys with Two Ureters. E. Perman.—p. 591.
Amputation Stumps in Sweden. Silfverskiöld and Hansson.—p. 602.

Phlegmonous Enteritis.—Bohmansson has compiled 68 cases of acute purulent processes in the intestinal wall, only 24 surviving. Of the 18 cases treated by primary resection, only 22.2 per cent. terminated fatally while the mortality in cases without radical operation was 80 per cent. His list includes 9 from his own experience and 2 other unpublished cases. The exact diagnosis cannot be made until the abdomen is opened; the prognosis is favorable with resection. In 4 fatal cases there was no peritonitis at any time. The ages ranged from 16 to 80 except 2 children of 3 and 12.

Hemorrhage After Cauterization of Pleural Adhesions.—The application of the Jacobæus method was a complete success although conditions had seemed exceptionally unfavorable. Blood spurted as one of the adhesions was severed. There had been nothing to indicate that this adhesion contained a blood vessel. Attempts to char the stump failed on account of the spurting blood, and the skin was sutured and the woman left over night on the operating table, the pulse gradually improving. In a second case two of the adhesions bled as they were divided, and about 150 c.c. of blood accumulated in the pleura. The hemorrhage soon stopped. In this case one of the adhesions had torn loose spontaneously. This occurred also in another case during a course of treatment for scabies.

Tuberculous Epididymitis.—Söderlund analyzes the course and outcome in fifty-two cases given operative treatment. In thirteen other cases the diagnosis of tuberculosis proved erroneous. The chronic epididymitis in one nontuberculous case followed eighteen months after removal of the testis on the other side for unmistakable tuberculosis. The testis seems to be peculiarly resistant to tuberculosis. After removal of the tuberculous epididymis, mild tuberculous lesions in the testis generally heal spontaneously. In two cases, however, the lesion progressed and the testis had to be removed later. Fistulas and abscesses do not necessarily contraindicate epididymectomy alone.

Progress in Gastroscopy.—Sternberg relates that study of the mechanics of endoscopy has enabled him to devise an effectual method of treating asthma and stuttering, and to perfect gastroscopy. He asserts that direct local treatment of gastric ulcer under direct visual inspection, even at the pylorus or beyond, is possible with his gastroscope.

Coxa Plana.—Waldenström remarks that Legg and he were the first to describe this affection (1909), Sourdat's, Calvé's and Perthes' descriptions not appearing until 1910. He has traced the course with the roentgen rays through the years in forty cases, and states that the outcome is about the same in cases given no treatment as in the others. The functional outcome is remarkably good. The affection runs about a six year course; he advises that, the first three to five years, the child should not take part in gymnastic exercises, jump, nor take long walks. But this advice is purely theoretic as his cases offer no clue to treatment, except of course with pains and much contracture. Thirteen roentgenograms accompany the article, which is in English.

Acta Medica Scandinavica, Stockholm

57: 515-622 (Feb. 22) 1923

*Essential Hypertension. W. Kerppola.—p. 515.
Preserved Sensibility of Last Sacral Segments in Differential Diagnosis Between Extramedullary and Intramedullar Tumors. W. Kerppola.—p. 527.
*Wassermann Reaction in Prognosis in Syphilitic Disease of Aorta. T. E. H. Thaysen.—p. 543.
*Clinical Determination of Capillary Tension. E. Kylin.—p. 566.
*Blood Picture in Erythema Nodosum. W. A. Hoyer.—p. 587.
*Frontal Reflex in Cerebral Affections. I. Holmgren.—p. 616.

Essential Hypertension.—Kerppola examined thirty-one cases of essential hypertension. About 50 per cent. had a higher amount of hemoglobin; 45 per cent. increased numbers of erythrocytes; 60 per cent. monocytosis. The coagulation time was slightly prolonged in 40 per cent. The blood sugar was normal on a fasting stomach; the sugar tolerance was lowered in 80 per cent.; alimentary glycosuria was present in 25 per cent.

Syphilitic Affections of the Aorta.—Thaysen finds that the Wassermann reaction is of no prognostic value in syphilitic aortitis.

Clinical Determination of Capillary Tension.—Kylin gives details of his technic for determining capillary blood pressure. This and the preceding article are in English; the last is in French; the others are in German.

Blood Picture in Erythema Nodosum and Etiology.—Hoyer examined the blood in twenty patients with erythema nodosum. Slight neutrophilic and eosinophilic leukocytosis in the incubation period is followed by lymphocytosis and monocytosis with progressive lowering of the number of neutrophils. This picture is very different from that of acute rheumatism, and resembles an anaphylactic reaction—possibly to proteins of tubercle bacilli.

Frontal Reflex in Some Cerebral Affections.—Holmgren, in some hemiplegic patients, found that gliding pressure on the forehead of the healthy side provoked bilateral elevation of the eyebrows. Most of these patients had hemorrhage or thrombosis affecting the lentiform nucleus. He calls his symptom the frontal reflex.